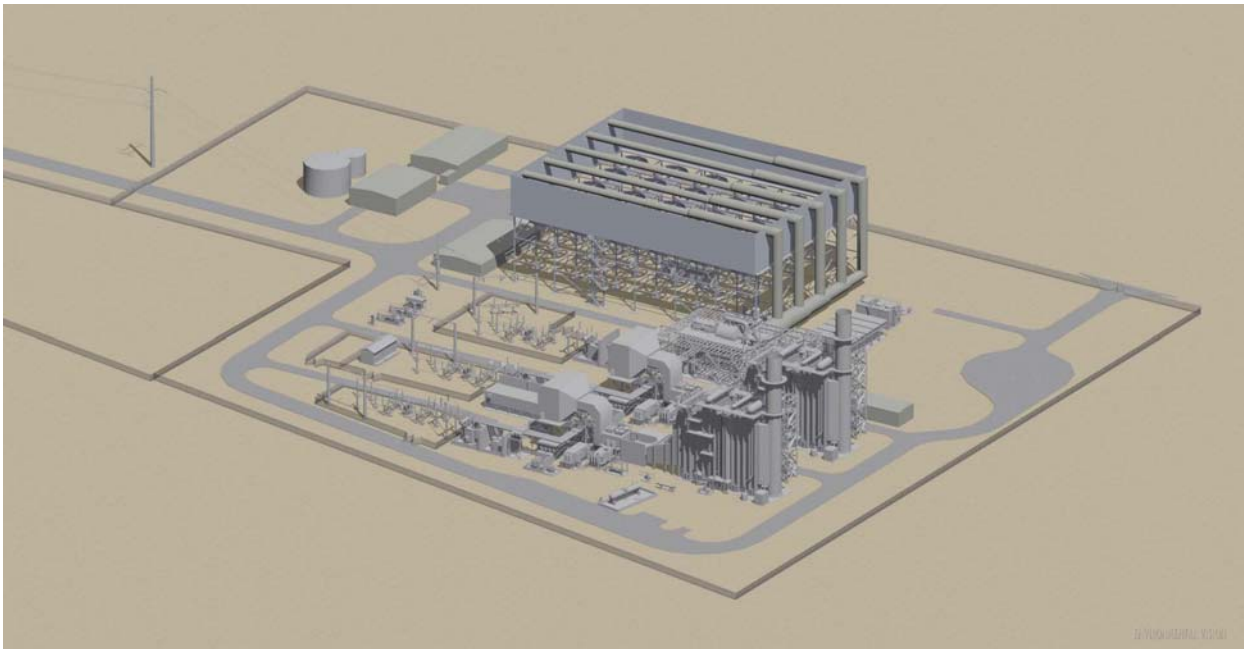
OAKLEY GENERATING STATION

Commission Decision



CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown Jr., Governor

MAY 2011
CEC-800-2011-002-CMF

DOCKET NUMBER 09-AFC-4

CALIFORNIA
ENERGY COMMISSION
1516 Ninth Street
Sacramento, CA 95814

http://www.energy.ca.gov/sitingcases/oakley/index.html

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This report was prepared by the California Energy Commission Oakley Project AFC Committee as part of the Oakley Project, Docket No. 09-AFC-4. The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted at an Energy Commission Business Meeting.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
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APPLICATION FOR CERTIFICATION FOR THE ***OAKLEY GENERATING STATION PROJECT***	**DOCKET NO. 09-AFC-4** **ORDER NO. 11-0518-15**

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the ***Oakley Generating Station Project***. It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter and the Committee Errata. The Commission Decision is based upon the evidentiary record of these proceedings and considers the comments received at the May 18, 2011, business meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and Conditions imposed.

This **ORDER** adopts by reference the text, Conditions of Certification, Compliance Verifications, and Appendices contained in the Commission Decision. It also adopts specific requirements contained in the Commission Decision which ensure that the proposed facility will be designed, sited, and operated in a manner to protect environmental quality, to assure public health and safety, and to operate in a safe and reliable manner.

FINDINGS

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

1. The ***Oakley Generating Station Project*** will provide a degree of economic benefits and electricity reliability to the local area.

2. The Conditions of Certification contained in the accompanying text, if implemented by the project owner, ensure that the project will be designed, sited, and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards, including applicable public health and safety standards, and air and water quality standards.

3. Implementation of the Conditions of Certification contained in the accompanying text will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project will neither result in, nor contribute substantially to, any significant direct, indirect, or cumulative adverse environmental impacts.

4. Existing governmental land use restrictions are sufficient to adequately control population density in the area surrounding the facility and may be reasonably expected to ensure public health and safety.

5. The project is subject to Fish and Game Code section 711.4 and the project owner must therefore pay a nine hundred forty-nine dollar ($949) fee to the California Department of Fish and Game.

6. Construction and operation of the project, as mitigated, will not create any significant adverse environmental impacts. Therefore, the evidence of record also establishes that no feasible alternatives to the project, as described during these proceedings, exist which would reduce or eliminate any significant environmental impacts of the mitigated project.

7. The evidence of record does not establish the existence of any environmentally superior alternative site.

8. The evidence of record establishes that an environmental justice screening analysis was conducted and that the project, as mitigated, will not have a disproportionate impact on low-income or minority populations.

9. The Decision contains a discussion of the public benefits of the project as required by Public Resources Code section 25523(h).

10. The Decision contains measures to ensure that the planned, temporary, or unexpected closure of the project will occur in conformance with applicable laws, ordinances, regulations, and standards.

11. The proceedings leading to the Decision have been conducted in conformity with the applicable provisions of Commission regulations governing the consideration of an Application for Certification and thereby meet the requirements of Public Resources Code sections 21000 et seq. and 25500 et seq.

ORDER

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

1. The Application for Certification of the ***Oakley Generating Station Project*** as described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification and Compliance Verifications enumerated in the accompanying text and Appendices. 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 of a Condition or Verification may not be delegated.

3. This Decision is adopted, issued, effective, and final on May 18, 2011.

4. Reconsideration of this Decision is governed by Public Resources Code, section 25530.

5. Judicial review of this Decision is governed by Public Resources Code, section 25531.

6. 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 section 25532. All conditions in this Decision take effect immediately upon adoption and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

7. This Decision licenses the project owner to commence construction on the project within five years of this Decision date. Subject to the provisions of California Code of Regulations, title 20, section 1720.3, this license expires by operation of law when the project's start-of-construction deadline passes with no construction.

8. The project owner shall provide the Executive Director a check in the amount of nine hundred forty-nine dollars ($949) payable to the California Department of Fish and Game.

9. The Executive Director of the Commission shall transmit a copy of this Decision and appropriate accompanying documents, including the Department of Fish and Game fee, as provided by Public Resources Code section 25537, California Code of Regulations, title 20, section 1768, and Fish and Game Code section 711.4.

10. We order that the Application for Certification docket file for this proceeding be closed effective the date of this Decision, with the exception that the docket file shall remain open for 30 additional days solely to receive material related to a petition for reconsideration of the Decision.

Dated: May 18, 2011, at Sacramento, California.

ROBERT B. WEISENMILLER
Chairman

(Absent)
JAMES D. BOYD
Vice Chair

KAREN DOUGLAS
Commissioner

CARLA PETERMAN
Commissioner

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INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains the Commission's rationale in determining that the proposed Oakley Generating Station (OGS) will, as mitigated, have no significant impacts on the environment and complies with all applicable laws, ordinances, regulations, and standards (LORS). This Decision is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the OGS is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

On June 30, 2009, Contra Costa Generating Station, LLC (Contra Costa) submitted to the California Energy Commission, an Application for Certification (AFC) to construct and operate the Oakley Generating Station (OGS), formerly known as the Contra Costa Generating Station. The proposed OGS Project would consist of natural gas-fired electric generation facilities and ancillary systems located primarily on a 21.95-acre site in the City of Oakley in Contra Costa County and within a portion of the transmission route in the City of Antioch, California.

The AFC was reviewed for data adequacy and at a business meeting held on September 23, 2009, where the Energy Commission adopted the Executive Director's data adequacy recommendation, thereby deeming the AFC complete for filing purposes thus starting the Energy Commission's formal review of the proposed project.

The OGS Project will be a natural gas-fired, combined-cycle facility with a nominal generating capacity of 624 megawatts (MW). The facility will be capable of operating 24 hours per day, 7 days per week and will be designed as a base-load facility with the added capabilities of rapid startup, high turndown capability (i.e. ability to turn down to a low load), and high ramp rates. Because the combined-cycle configuration will be more efficient than other aging gas-fired

[1] The Reporter's Transcript of the evidentiary hearings is cited as "date of hearing RT page __." For example: 03/15/11 RT 77. The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in **Appendix B** of this Decision.

steam generation facilities in northern California, the OGS facility is anticipated to be frequently dispatched and operate up to approximately 8,463 hours per year (approximately 96.6 percent capacity with the balance in downtime for maintenance), yet with an expected facility capacity factor at 60 to 80 percent. The Applicant has entered into a Purchase and Sale Agreement with Pacific Gas and Electric Company (PG&E) to guarantee commercial availability of power by June 1, 2016.

Power will be transmitted to the regional electrical grid through a 230-kV connection to PG&E's Contra Costa Substation, located 2.4-miles to the southwest of the OGS. The project will replace the existing 60-kV line, located within an existing 80-foot-wide PG&E easement, with a 230-kV line.

Construction laydown and parking areas will be located on a 20-acre parcel east of the plant site on DuPont property. Additionally, DuPont has requested the use of any excess soils resulting from initial leveling and grading of the site. Three stockpile locations, on DuPont properties to the north, have been identified for future use by DuPont for potential build-out of the DuPont Oakley Specific Plan.

The Energy Commission has exclusive jurisdiction to license this project and is considering the proposal under a review process established by Public Resources Code section 25540.6.

If the OGS Project is approved by the Energy Commission, there will be an average and peak construction workforce of approximately 303 and 729, respectively. Typically, noisy construction would be scheduled to occur only as allowed under City of Oakley and City of Antioch ordinances. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., pouring concrete at night during hot weather, working around time-critical shutdowns and constraints). During some construction periods and during the startup phase of the project, some activities may continue 24 hours per day, 7 days per week.

The cost of materials and supplies required for the construction of OGS is estimated at approximately $371.25 – $412.5 million. The estimated value of materials and supplies that will be purchased locally during construction is estimated at $3.7 – 4.1 million. OGS is estimated to provide approximately $26.48 million in annual construction payroll.

The OGS will employ a staff of 22, which includes plant operation technicians, supervisors, administrative personnel, mechanics, engineers and others in three rotating shifts. The facility will be capable of operating 24 hours per day, 7 days per week with an anticipated annual operation payroll of $3.5 million. It is anticipated that the entire permanent workforce will be from within Contra Costa County. (Ex. 300, pp. 3-4 – 3-5.)

B. SITE CERTIFICATION PROCESS

The OGS and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Res. Code, § 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Res. Code, §§ 25519(c), 21000 et seq.) The Commission's regulatory process, including the evidentiary record and associated analyses, is functionally equivalent to the preparation of an Environmental Impact Report. (Pub. Res. Code, § 21080.5.) The process is designed to complete the review within a specified time period when the required information is submitted in a timely manner. A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough review and analysis of all aspects of a proposed power plant project. During this process, the Energy Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

Specifically, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally or on a formal level as intervenor parties who have the opportunity to present evidence and cross-examine witnesses. Public participation is encouraged at every stage of the process.

The process begins when an applicant submits an AFC. Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and evidentiary hearings, where the evidentiary record is developed and becomes the basis for the Presiding Member's Proposed Decision (PMPD). The

PMPD determines a project's environmental impact and conformity with applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining necessary technical information. During this time, the Commission staff sponsors public workshops at which intervenors, agency representatives, and members of the public meet with staff and the applicant to discuss, clarify, and negotiate pertinent issues. In this proceeding, Staff published its initial technical evaluation of the OGS in its Preliminary Staff Assessment Parts A and B and made them available for a 30-day comment period.

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee issues a Hearing Order to schedule formal evidentiary hearings. At the evidentiary hearings, all formal parties, including intervenors, may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may offer oral or written comments at these hearings. Evidence submitted at the hearings provides the basis for the Committee’s analysis and recommendations to the full Commission.

The Committee’s analysis and recommendations appear in the PMPD, which is available for a 30-day public comment period. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may elect to publish a revised version. If so, the Revised PMPD triggers an additional public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

Throughout the licensing process, members of the Committee, and ultimately the Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Commission staff, and formal intervenors, function independently with equal legal status. An "ex parte" rule prohibits parties in the case, or other persons with an interest in the case, from communicating on substantive matters with the decision-makers, their staffs, or assigned hearing officer unless these communications are made on the public record. The Office of the Public Adviser is available to assist the public in participating in all aspects of the certification proceeding.

C. PROCEDURAL HISTORY

Public Resources Code, sections 25500 et seq. and Energy Commission regulations (Cal. Code Regs., tit. 20, § 1701, et seq.) mandate a public review process and specify the occurrence of certain procedural events in which the public may participate. The key procedural events that occurred in the present case are summarized below.

On June 30, 2009, Contra Costa Generating Station, LLC (Contra Costa) submitted an AFC to the California Energy Commission to construct and operate the OGS (formerly identified as the Contra Costa Generating Station). On September 23, 2009, the Energy Commission accepted the AFC as data adequate and assigned a Committee of two Commissioners to conduct proceedings, thus starting the Energy Commission's formal review of the proposed project.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenor Robert Sarvey.

On October 8, 2009, the Committee issued its "Notice of Informational Hearing, Environmental Scoping Meeting, and Public Site Visit." The Notice was mailed to local agencies and members of the community who were known to be interested in the project, including the owners of land adjacent to or in the vicinity of the OGS. The Public Adviser's Office also advertised the public hearing and site visit and distributed information to local officials and sensitive receptors surrounding the project site.[2]

On November 9, 2009, the Committee conducted a site visit to tour the proposed OGS site and then convened a public Informational Hearing at Oakley City Hall in Oakley, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the project, described the Commission's review process, and explained opportunities for public participation.

On November 23, 2009, the Committee issued its initial Scheduling Order. The Committee Schedule was based on both the Applicant's and Staff's proposed schedules and related discussion at the Informational Hearing. The schedule

[2] Sensitive receptors are people or institutions with people that are particularly susceptible to illness, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

contained a list of events that must occur in order to timely complete the certification process. The Committee issued a revised schedule during the course of the proceedings.

In the course of the review process, Staff conducted a Data Response and Issue Resolution Workshop on April 23, 2010. A Preliminary Staff Assessment (PSA) was previously prepared for this project in two parts. PSA – Part A was published on December 20, 2010 and PSA – Part B was published on January 14, 2011. On February 2, 2011, Staff conducted a second publicly noticed workshop in order to provide an opportunity for agencies, intervenors, the public, and other interested parties to present questions and comments on the PSA. All interested agencies and members of the public were invited to participate.

The Final Staff Assessment (FSA) was published in two parts: the first part as an FSA, and the second part as a Supplemental Staff Assessment (SSA). On January 25, 2011, the Committee issued a Notice to all parties of the Prehearing Conference and Evidentiary Hearing to be held on Tuesday, March 15, 2011, in Oakley, California. An additional day of Evidentiary Hearings was held on March 25, 2011, at the Energy Commission headquarters in Sacramento.

The Energy Commission seeks comments from and works closely with other regulatory agencies that administer LORS applicable to the proposed project. These agencies may include as applicable the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, State Water Resources Control Board/Regional Water Quality Control Board, California Department of Fish and Game, the California Air Resources Board, the Bay Area Air Quality Management District, the California Independent System Operator, and the City of Oakley. Energy Commission staff received comments from various public agencies, such as, the City of Oakley, the City of Antioch, the United States Fish and Wildlife Service, the California Department of Water Resources, and the California Department of Toxic Substances Control.

The Committee published the PMPD on April 12, 2011, and will hold a Committee Conference in Sacramento at Commission Headquarters on May 3, 2011. The Full Commission will consider the PMPD and possibly an Errata at the May 18, 2011, business meeting.

D. COMMISSION OUTREACH

Several entities within the Energy Commission provide various notices concerning power plant siting cases. Staff provides notices of staff workshops

and the release of the Staff Assessments. The Hearing Office notices Committee-led events such as the informational hearing and site visit, status conferences, the prehearing conference, and evidentiary hearings. The Public Adviser's Office provides additional outreach for critical events as well as provides information to interested persons that would like to become more actively involved in a power plant siting proceeding. Further, the Media Office provides notice of events to local and regional press through press releases. The public may also subscribe to the proceeding's e-mail List Server offered on the web page for each project which gives an immediate notification of documents posted to the project web page. Through the activities of these entities, the Energy Commission has made every effort to ensure that interested persons are notified of activities in this proceeding.

E. PUBLIC COMMENT

The record contains public comments from concerned individuals and organizations. Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-sponsored conference and hearing.

Intervenor Sarvey filed written comments questioning whether the project has rapid start up capability. The substantial, credible evidence submitted by Staff and Applicant, respectively, establishes that the project will be designed as a base-load facility with the added capabilities of rapid startup. (See, e.g., Exs. 1 and 300, **Executive Summary**, **Project Description**, **Project Alternatives**, **Air Quality**, and **Power Plant Efficiency**.)

Sarvey further argues 1) that "the Commission Certification process does not evaluate the potential economic impact of the project or need for the project" and 2) that his Exhibit 400 "conclusively showed that the OGS is not needed at this time." The record and discussions contained in the PMPD, including but not limited to those within the **Project Description**, **Project Alternatives**, **Greenhouse Gas Emissions**, and **Socioeconomics** sections are based on the Applicant's and Staff's credible evidence and assess the project's economic impacts, environmental benefits, and the need for new generation and new transmission technologies in the immediate future and beyond in order to maintain adequate supplies to satisfy electricity needs.

I. PROJECT DESCRIPTION AND PURPOSE

Contra Costa Generating Station, LLC (the "Applicant" or "CCGS") filed an Application for Certification (AFC) for the Oakley Generating Station (OGS) Project on June 30, 2009. CCGS is a limited liability corporation wholly owned by Radback Energy, Inc. CCGS proposes to construct, initially own, and operate a natural gas-fired, combined-cycle electrical generating facility located in northeastern Contra Costa County at 5950 Bridgehead Road in the City of Oakley. The project site is within the city limits of Oakley, California, and the project's linear facilities extend west into Antioch, California.

The evidence presented on the topic of **Project Description and Purpose** was undisputed. (3/15/11 RT 67-77; 99-101, Exs. 1, §§ Executive Summary, 1.0, 2.0; 4.0, Appendix 2.0; 2 [Response 1]; 4; 5; 6, 23; 46; 50; 55; 300, § 3-1.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The 21.95-acre OGS site is located in the southwest corner of a larger parcel owned by E. I. du Pont de Nemours and Company (DuPont). Before a lot line adjustment that now identifies the project site as a separate parcel, the larger DuPont parcel was comprised of 210 acres.

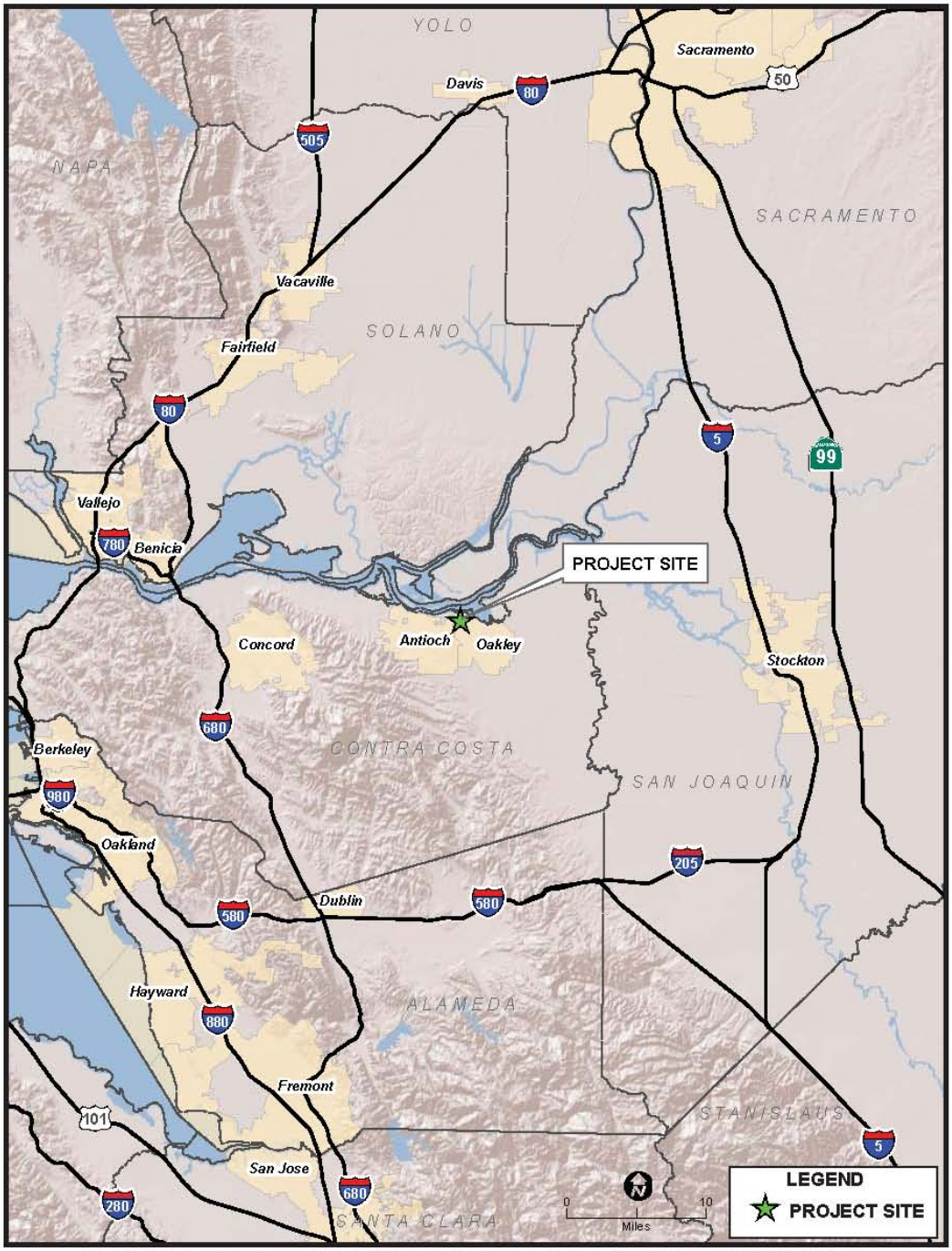
The Oakley General Plan designates the OGS site as Utility Energy and the Oakley zoning ordinance identifies the property as Heavy Industrial (H-1). However, from the early 1960s and continuing to the present, the OGS site has been cultivated as a vineyard.

The project site is bounded by industrial DuPont property to the north and east, the Burlington Northern Santa Fe (BNSF) Railway and vineyards to the south, the State Route 160 corridor to the west and other industrial uses that include Pacific Gas & Electric's Antioch Terminal. Single family residential uses are within one mile of the OGS site.

The 20-acre construction laydown and parking areas will be on DuPont-owned property located east of and adjacent to the OGS site. Primary access to the OGS site and laydown/parking areas will be by way of a new entrance lane extending from Bridgehead Road, just south of the intersection of Bridgehead Road and Wilbur Avenue.

Project Description Figures 1 and **2** below are regional and vicinity maps showing the project location.

PROJECT DESCRIPTION - FIGURE 1
Oakley Generating Station - Regional Map



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 1.1-1

PROJECT DESCRIPTION

PROJECT DESCRIPTION - FIGURE 2
Oakley Generating Station - Vicinity Map

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 1.1-2

PROJECT DESCRIPTION

2. Project Purpose and Objectives

The evidence explains the Applicant's purpose and objectives for the OGS Project. According to the Applicant, CCGS LLC entered into a Purchase-Sale Agreement with PG&E for the OGS to meet PG&E's reported near-term need for new power facilities that can be online on or about 2015 and that can support easily dispatchable and flexible system operation. The California Public Utilities Commission approved the Purchase-Sale Agreement on December 16, 2010. (Exs. 1 pp. ES-1, 50, p. 2-3, 300, p. 3-1.)

The Applicant intends for the project to satisfy the following objectives (which coincide with PG&E's objectives):

- Provide the most efficient, reliable, and predictable power supply available by using combined-cycle natural gas-fired combustion turbine technology capable of supporting the growing power needs of Contra Costa County;
- Use state-of-the-art technology to provide operational flexibility and rapid-start and dispatch capability;
- Site the project as near as possible to 230-kilovolt (kV) high-voltage electrical transmission lines and a high-pressure natural gas pipeline;
- Site the project near the San Francisco Bay Area load center and minimize the need to construct new transmission lines; and
- Minimize environmental impacts. (Exs. 1, pp. ES-1 - ES-2, § 1.0, pp. 1-1 - 1-2; 300, p. 3-1.)

3. Project Description

The OGS facility will operate as a natural-gas-fired, combined-cycle power plant with a nominal generating capacity of 624 megawatts (MW). OGS will use General Electric's Rapid Response combined-cycle technology, which is described as new state-of-the-art technology that will result in reduced emissions while furthering state and Commission goals of renewables integration. (Ex. 300, p. 3-2.)

The facility will be capable of operating 24 hours per day, seven days per week. The facility is designed as a base-load facility capable of rapid startup, high turndown capability, and high ramp rates. The plant is expected to be frequently dispatched and operate up to approximately 8,463 hours per year (96.6 percent capacity), with a facility capacity factor at 60 to 80 percent. (*Id.*)

The project's principal design elements include:

- Two General Electric (GE) Frame 7FA combustion turbine-generators (CTGs) with a nominal rating of 213 MW each.
- One GE D11 condensing steam turbine generator (STG).
- Two unfired heat recovery steam generators (HRSGs).
- One auxiliary boiler.
- One air-cooled condenser – using dry-cooled technology - for process cooling.
- A 230-kV onsite switchyard to deliver the project's power directly to the grid through a 2.4-mile-long, single-circuit, 230-kV transmission line that will connect the project with the PG&E Contra Costa Substation.
- Direct connection with the nearby PG&E Antioch natural gas terminal for natural gas supply.
- Connection to an existing onsite potable water line.
- Connection to an existing sanitary sewer pipeline located in Main Street via a new 0.44-mile force-main in Bridgehead Road. (Exs. 1, pp. 2-1, 2-13 - 2-25; 300, pp. 3-2 - 3-4.)

Construction of the OGS plant and related facilities, from site preparation and grading to commercial operation, will take place over a 33-month period. Once operational, the plant will employ approximately 22 full-time workers. The Applicant estimates 729 workers during the peak of construction and an average of 303 construction workers. The Applicant further estimates initial project capital costs of $450 to $500 million. The estimated value of materials and supplies that will be purchased locally during construction is $3.7-$4.1 million. (Exs. 1, pp. 2-32, 2-33, 5.10-17; 50, p. 3.)

Project Description Figure 3 below shows the project site in its pre-construction condition. **Project Description Figure 4** is an architectural rendering of the proposed OGS facility after construction.

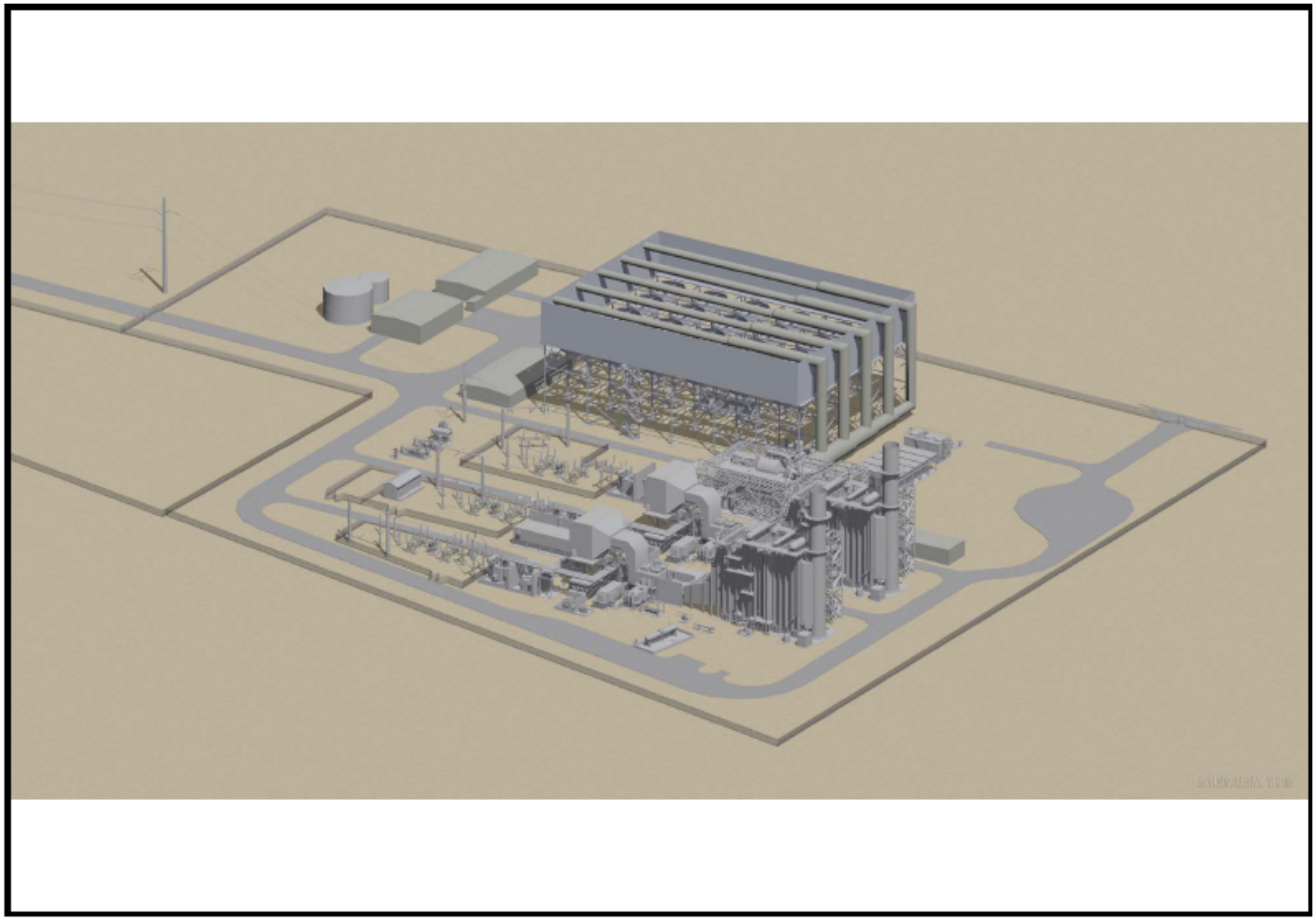
PROJECT DESCRIPTION – FIGURE 3

Oakley Generating Station - Project Site, View East

CALIFORNIA ENERGY COMMISSION – SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

Source: AFC Figure 1.1-3

PROJECT DESCRIPTION – FIGURE 4
Oakley Generating Station – Architectural Rendering



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 1.1-4

4. Air Quality

As more fully discussed in the **Air Quality** section of this Decision, the project design incorporates air pollution emission controls designed to meet Bay Area Air Quality Management District's (BAAQMD) Best Available Control Technology (BACT) determinations. (Ex. 300, p. 3-2.) The emission reduction technology includes:

- Dry Low Nitrogen Oxides (DLN) combustors in the CTGs to limit nitrogen oxides (NO_X) production.
- A selective catalytic reduction (SCR) unit with aqueous ammonia for additional NO_X reduction in the HRSGs.
- An oxidation catalyst to control carbon monoxide and precursor organic compounds emissions. (Exs. 1, p. 2-1; 300, pp. 3-2 - 3-3.)

Particulate emissions will be controlled by the use of best combustion practices, the use of pipeline specification natural gas as the sole fuel for the CTGs, and high efficiency air inlet filtration. The auxiliary boiler will be equipped with ultra low NO_X burners and Flue Gas Recirculation (FGR). (*Id*.)

5. Electrical Transmission

The OGS will be connected to the regional electrical grid by way of a 2.4-mile-long, single circuit transmission line from a new onsite OGS switchyard and the existing 230-kV PG&E Contra Costa Substation. The new transmission line will be located within an existing 80-foot-wide PG&E 60-kV right-of-way. The project will replace an existing 60-kV line with a 230-kV line. (Exs. 1, p. 2-15.; 300, p. 3-4.)

Project Description Figure 5 below shows the 2.4-mile-long interconnection route.

PROJECT DESCRIPTION - FIGURE 5
Oakley Generating Station - Interconnection to Contra Costa Substation

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SOURCE: AFC Figure 3.2-1

PROJECT DESCRIPTION

6. Natural Gas Supply

The OGS is designed to burn only natural gas. One or two newly constructed, off-site pipelines will supply natural gas to the project from PG&E's Antioch Terminal, which is a high-pressure natural gas transmission pipeline hub that borders the OGS site to the south. PG&E will serve the OGS plant from its Line 303 by way of a 300-foot-long, 6- to 10-inch-diameter pipeline that will pass through the southwest corner of the OGS site. The tap to Line 303 will be located either in the southwest corner of the OGS site or in the Antioch Terminal. The pipeline will terminate in a PG&E gas metering yard located inside the OGS site, west of the OGS switchyard.

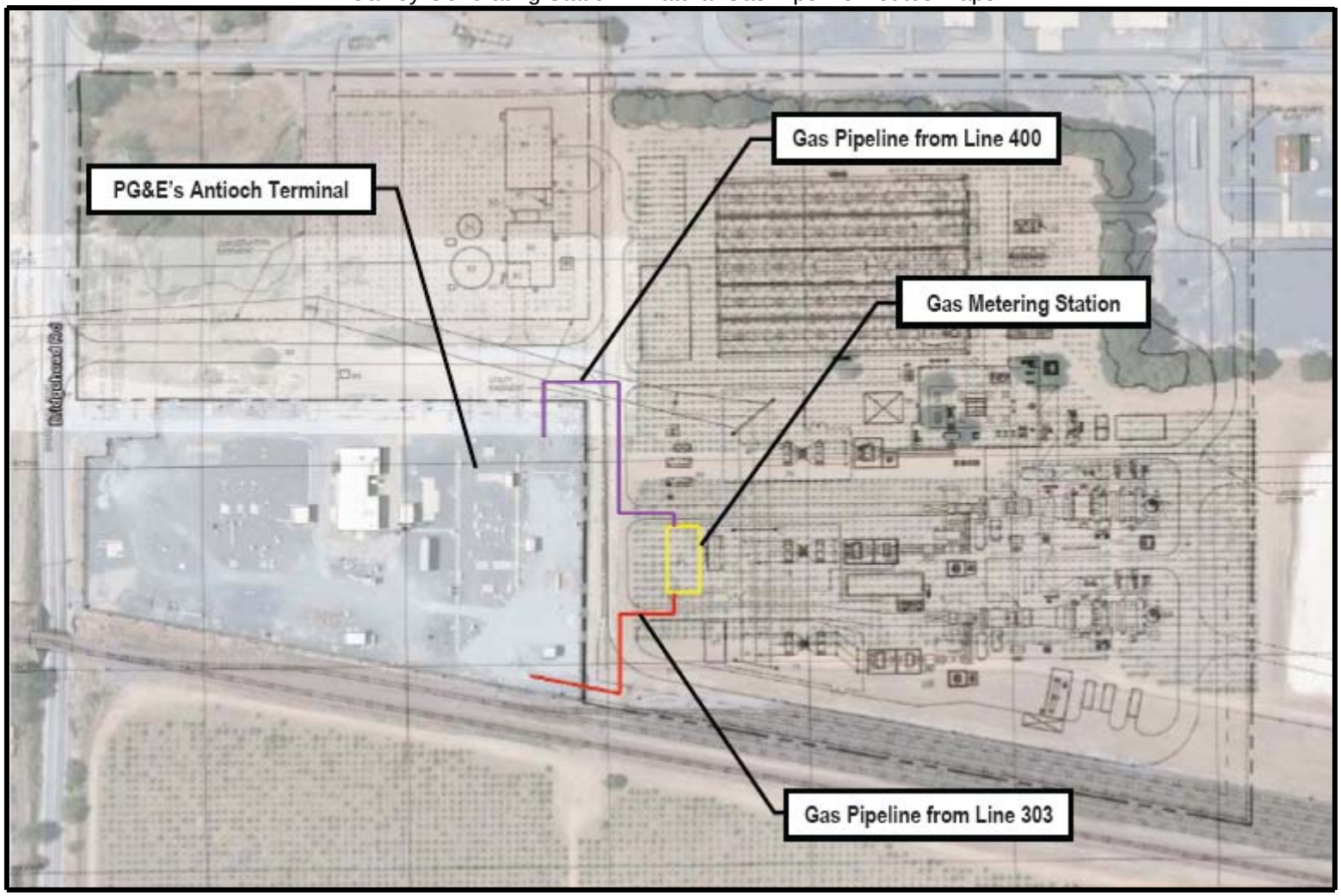
If the project owner elects to use a secondary natural gas supply, then a new 410-foot-long, 6- to 10-inch-diameter pipeline will be constructed to connect to PG&E's Line 400. This line would pass through the OGS site and enter the northeast corner of the Antioch Terminal.

The evidence establishes that Lines 303 and 400 provide the shortest routes for connection, lie entirely within the OGS or Antioch Terminal sites, and will not require additional off-site rights-of-way or utility easements. (Exs. 1, p. 2-20; 300, p. 3-3.)

Project Description Figure 6 shows the routes for Lines 303 and 400.

PROJECT DESCRIPTION – FIGURE 6

Oakley Generating Station – Natural Gas Pipeline Routes Maps



CALIFORNIA ENERGY COMMISSION – SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

Source: AFC Figure 4.0-1

7. Water Supply

The Diablo Water District will provide potable and process water to the project. The project will access the water through a tap from an existing 24-inch-diameter distribution pipeline that runs north-south through the OGS site. Average annual water use will be approximately 240-acre-feet per year, which reflects the project's use of an air-cooled condenser (dry-cooled technology) for steam-process cooling. (Exs. 1, p. 2-20; 300, p. 3-3.)

Following commencement of project operation, if the conditions outlined in Condition of Certification **SOIL&WATER-4** are met, the project owner will file a Petition For Amendment with the Commission to use recycled water from Ironhouse Sanitary District or another entity capable of providing recycled water, as the project's primary water supply for project operations including all process and landscape irrigation. As stated in **SOIL&WATER-4**, the project's use of recycled water must first be approved by the Energy Commission subject to a project modification request submitted by the project owner. The evidence establishes that the OGS Project is designed to use recycled water as a potential water source should the water become reasonably available to the project. (Exs. 300, p. 3-3, 62.) Further discussion of the project's water use and supply occurs in the **Soil and Water** section of this Decision.

8. Wastewater

The Applicant estimates the OGS Project will discharge 43 million gallons per year of wastewater, on average. The wastewater, consisting of process and sanitary wastewater, will discharge to the ISD sewer system by way of a new sewer line to be located in Bridgehead Road. Specifically, the project will install a 0.44-mile forcemain in Bridgehead Road, along the project's western frontage, that will interconnect to an existing 18-inch ISD gravity sewer line located in Main Street, approximately 600-feet east of the intersection of Bridgehead Road and Main Street. (Exs. 1, pp. 2-20, 2-25, 2-41; 300, p. 3-3.)

Further discussion of the project's handling of wastewater occurs in the **Soil and Water** section of this Decision.

9. Storm Water Discharge

According to the evidence, storm water within the process equipment container areas will be collected and discharged to the plant process drain system. Wastewater with potential for contamination by oil or grease will be routed to the oil/water separator. Effluent from the oil/water separator will be combined with other process wastewater and sanitary wastewater and pumped by a wastewater lift station to the new forcemain to be constructed in Bridgehead Road.

The evidence further indicates that storm water that falls outside the process equipment containment areas will either percolate directly into the soil or drain over the surface into a series of bio-swales that will provide treatment for the removal of suspended solids, oils, and grease that may have accumulated on paved surfaces. These bio-swales will direct treated storm water drainage into an existing wetland identified as Wetland E. Wetland E is located at the northwest corner of the OGS site and is described as an isolated 0.62-acre wetland located within a 1.60-acre conservation easement with no connection to navigable waters. The OGS storm water management system is designed to ensure that (1) the quality of storm water draining into the wetland is not negatively affected, and (2) the OGS Project will not adversely alter the flow of storm water into the wetland. (Exs. 1, p. 2-28; 300, p. 3-4.)

Further discussion of the project's handling of storm water discharge and addressing potential impacts to Wetland E occurs in the **Soil and Water** section of this Decision.

10. Non-Hazardous Solid Waste

Construction, operation, and maintenance of the OGS Project will generate non-hazardous solid wastes typical of power generation or other industrial facilities. These wastes include oily rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, and so on. These solid wastes will disposed of through contracted refuse collection and recycling services. (Exs. 1, p. 2-29.) Solid waste disposal is more fully discussed in the **Waste Management** section of this Decision.

11. Hazardous Waste Management

Construction and operation of the project requires use and storage of hazardous materials such as gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints. The project owner will implement several different methods to properly manage and dispose of hazardous wastes. For instance, waste lubricating oil will be recovered and recycled by a waste oil recycling contractor. Spent lubrication oil filters will be disposed of in a Class I landfill. Spent SCR and oxidation catalysts will be recycled by the supplier or disposed of in accordance with regulatory requirements. Plant personnel will receive appropriate personal protective equipment. They will also receive training on the proper use, handling and cleanup of hazardous materials and on the procedures to be followed in the event of a leak or spill. (Ex. 1, p. 2-29.)

Chemical cleaning wastes will be temporarily stored on site in portable tanks or sumps and disposed of offsite in accordance with applicable regulatory requirements. Adequate supplies of appropriate cleanup materials will also be stored onsite. (*Id*.)

Hazardous waste management is more fully discussed in the **Hazardous Materials Handling** section of this Decision.

12. Fire Protection

The project will rely on both onsite fire protection systems and local fire protection services under the jurisdiction of the East Contra Costa Fire Protection District. OGS fire protection systems will include a fire protection water system and portable fire extinguishers. The primary source of fire protection water will come from a connection to the Diablo Water District potable water distribution system. The secondary source of fire protection water will come from an onsite fire/service water storage tank sized to provide up to two hours of protection for a single, worst-case onsite fire. (Ex. 1, p. 2-30.)

Fire hydrants and fixed suppression systems will be supplied from a dedicated underground fire looping piping system. Portable fire extinguishers of will be located throughout the plant site. (*Id*.)

The **Worker Safety and Fire Protection** section of this Decision more fully discusses fire protection.

13. Facility Closure

The OGS facility has an expected operating life of 30 years but plant operations could possibly continue beyond 30 years. Whenever the facility is closed, whether temporarily or permanently, the closure procedures included in the **Compliance and Closure** section of this Decision will ensure compliance with applicable laws, ordinances, regulations, and standards (LORS) and ensure that the project ceases operation and closes down in a manner that protects public health and safety and the environment from adverse impacts. (Exs. 1, pp. 2-44 – 2-45, 300, pp. 3-5.)

FINDINGS OF FACT

Based on the evidentiary record, we find as follows:

1. Contra Costa Generating Station, LLC will operate the OGS Project on private land in the City of Oakley, Contra Costa County, California. The project transmission line will traverse land within the City of Antioch.

2. The project involves the construction and operation of a natural-gas, combined-cycle facility with a nominal electrical output of 624 megawatts (MW).

3. The OGS will be used a base load facility using General Electric state-of-the art rapid response combined-cycle technology.

4. A 230-kV onsite switchyard will deliver power to the grid through a 2.4-mile-long, single-circuit, 230-kV transmission line that will connect the OGS Project to the PG&E Contra Costa Substation.

5. Natural Gas will be supplied to the project site by one or two new pipelines (line 303 and possibly line 400) that connect to PG&E's Antioch Terminal.

6. Plant operations for potable and process purposes will require up to 240-acre feet per year of water, which shall be supplied by Diablo Water District by way of an existing connection.

7. The project and its objectives are adequately described by the relevant documents contained in the record.

CONCLUSION OF LAW

We therefore conclude that the OGS Project is described at a level of detail sufficient to allow review in compliance with the provisions of both the Warren-Alquist Act and the California Environmental Quality Act.

II. PROJECT ALTERNATIVES

As a general rule, the California Environmental Quality Act (CEQA), its Guidelines, and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives that meet the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. (Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e); *see also*, tit. 20, § 1765.)

We therefore evaluate the project alternatives. The range of alternatives, including the "No Project" alternative, is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative where the effect cannot be reasonably ascertained and whose implementation is remote and speculative. [Cal. Code Regs., tit. 14, § 15126.6(f)(3).]

The evidence in this case demonstrates that the project, as mitigated, will not create any significant adverse impacts. The evidence was undisputed except as discussed below and in the **Hazardous Materials Management**, **Biological Resources**, and **Soil and Water Resources** sections of this Decision. (3/15/11 RT 67-77, 3/25/11 RT 66-68, 11-12, Exs. 1; 55; 300, § 6-1, 400.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Objectives

The Applicant intends for the project to satisfy the following objectives:

- Provide the most efficient, reliable, and predictable power supply available by using combined-cycle natural gas-fired combustion turbine technology capable of supporting the growing power needs of Contra Costa County;
- Use state-of-the-art technology to provide operational flexibility and rapid-start and dispatch capability;
- Site the project as near as possible to 230-kilovolt (kV) high-voltage electrical transmission lines and a high-pressure natural gas pipeline;
- Site the project near the San Francisco Bay Area load center and minimize the need to construct new transmission lines; and

- Minimize environmental impacts. (Exs. 1, pp. ES-1 - ES-2, § 1.0, pp. 1-1 - 1-2; 300, p. 3-1.)

To ensure a thorough assessment of project alternatives, Staff refined and restated the project objectives as follows:

- Provide efficient, reliable, and predictable power supply capable of supporting the growing power needs of the Bay Area;
- Provide operational flexibility and rapid-start and dispatch capability;
- Site the project within the area of electrical demand and near existing infrastructure, thus minimizing the project's linear facilities;
- Site the project on a brownfield (previously disturbed) or industrial site. (Ex. 300, p. 6-5, 3/25/11 RT 67.)

2. Project Description

The Applicant proposes a 624 MW natural gas-fired facility, using General Electric's Rapid Response combined-cycle technology. The OGS would consist of two nominally-rated 213 MW General Electric Frame 7FA combustion turbine generators (CTGs), plus a single condensing steam turbine generator (STG). Associated equipment would include an air-cooled condenser, selective catalytic reduction (SCR), and oxidation catalyst emission control systems.

The OGS will interconnect to PG&E's Contra Costa Substation via an existing 2.4 mile transmission corridor, extending south from the OGS (on the east side of Highway 160) and then due west (running north of Oakley Road). The OGS will replace one of the two existing 60-kV lines (on steel lattice towers) in the corridor with a new 230-kV line on monopole towers. Natural gas will come from PG&E Line 303 (located in the southeastern portion of the Antioch Terminal) via an approximately 300 foot long, 6- to 10 inch diameter connection to the gas metering station. The project owner may also choose to include a 410-foot secondary natural gas supply connection from Line 400 (in the northeastern portion of the Antioch Terminal).

The OGS requires about 240 acre-feet of water per year (AFY) for plant cooling and process water, fire protection, and potable uses. The Diablo Water District will supply potable water for these purposes by way of an existing 24 inch diameter distribution pipeline that runs north-south through the OGS site (just east of PG&E's Antioch Terminal). After project operations begin and within 18

months of compliance with requirements set forth in Condition of Certification **SOIL&WATER-4**, the project shall use recycled water from Ironhouse Sanitary District (ISD) or another entity capable of providing recycled water, as the project's primary water supply for project operations including all process and landscape irrigation. As stated in **SOIL&WATER-4**, the project's use of recycled water must first be approved by the Energy Commission subject to a project modification request submitted by the project owner. The evidence establishes that the OGS Project is designed to use recycled water as a potential water source should the water become reasonably available to the project.

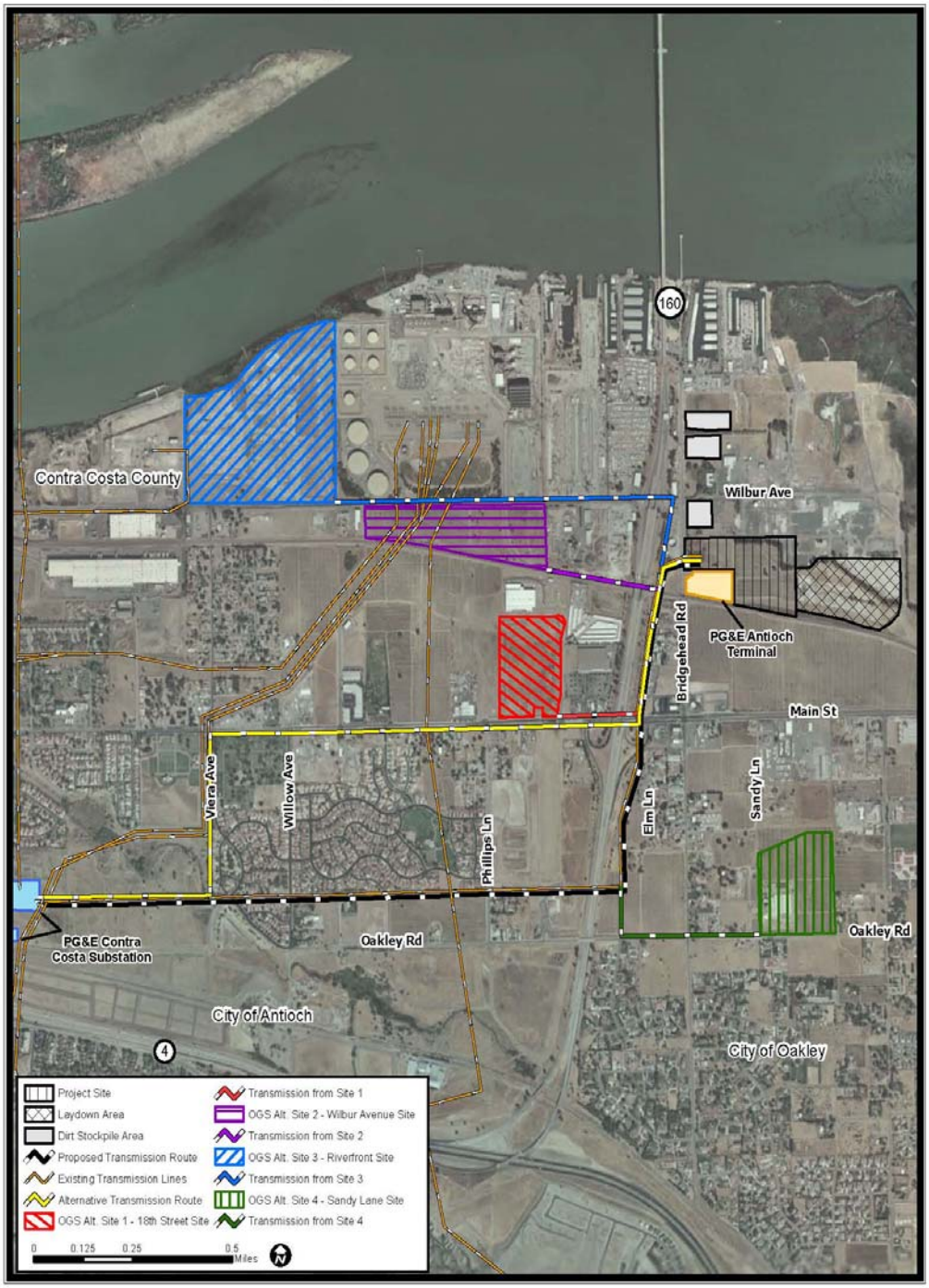
To discharge wastewater, a new 0.44-mile sanitary force main would be constructed in Bridgehead Road and Main Street. It would interconnect with ISD's existing 18-inch gravity sewer line near the intersection of Bridgehead Road and Main Street.

3. Alternative Sites

The evidence establishes that site alternatives were limited to Contra Costa County and only included properties within reasonable proximity of transmission, gas, and water infrastructure. (Exs. 1, pp. 6-3-6-7; 300, pp. 6-5 - 6-16, 3/25/RT 11 67.) Guided by the following project objectives and Energy Commission siting criteria, the Applicant and Staff evaluated four sites for the OGS Project. **Alternatives Figure 1** below shows the locations of the four sites.

ALTERNATIVES - FIGURE 1

Oakley Generation Station - Alternative Sites



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2011

SOURCE: California Energy Commission and OG 2009a

MARCH 2011 ALTERNATIVES

a. Alternative Site 1: 18th Street Site

This site is in the City of Antioch, 0.6 miles southwest of the proposed OGS site. The vacant 26-acre site had once been farmed. The site is adjacent to commercial uses, including a self-storage facility, automobile salvage yard, and fast-food restaurant. The nearest residence is 120 feet south of the site. The nearest school is located 0.25 miles to the east. The site is zoned Planned Business Center and Planned Development District; a General Plan amendment would be needed for the project. The Applicant does not own the site and its ability to obtain site control is unknown.

Potable water, wastewater collection, and storm drainage facilities are presently available in E. 18th Street and Drive–in Way. A 2.6-mile recycled water connection would connect to the City of Antioch's new recycled waterline on 'A' Street. A 2.1 mile transmission connection, partially following existing corridors, would connect to the Contra Costa Substation. The most likely transmission line route would be east along 18th Street to join the existing 60-kV transmission line corridor that would be used for the OGS Project. A 0.6 mile natural gas pipeline could potentially run east along 18th Street and north on Bridgehead Road to connect to the Antioch Terminal. (Exs, 1, p. 6-4; 300, pp. 6-6 - 6-7.)

b. Alternative Site 2: Wilbur Avenue Site

This 29-acre site is located approximately 0.5 miles west of the OGS site, in an unincorporated area of Contra Costa County. This site is zoned Heavy Industrial and contains active vineyards. The site is located between the BNSF railroad tracks to the south and Wilbur Avenue to the north. PG&E transmission corridors diagonally traverse the western portion of the site, limiting the amount of space available for project construction. The Contra Costa Power Plant is immediately north, and PG&E's Gateway Generating Station is to the northeast. There are other industrial uses to the east and west, and agriculture to the south.

The nearest residence is located approximately 1,200 feet west of the site, and the nearest school is 0.48 miles southeast of the site. The Applicant does not own the site and its ability to obtain site control is unknown.

A project at this site could tap into City of Antioch water and sewer pipelines, both located in Wilbur Avenue. A 2.2-mile recycled water connection would connect to the City of Antioch's new recycled waterline on 'A' Street. A 2.4-mile transmission interconnection would connect to the Contra Costa Substation. The

transmission route could travel east along the BNSF railroad tracks to join the existing corridor that would be used for the OGS Project. A 0.5 mile natural gas line running east along Wilbur Road and then south on Bridgehead Road would tie into the Antioch Terminal. (Exs. 1, p. 6-4; 300, pp. 6-8 - 6-10.)

c. Alternative Site 3: Riverfront Site

This 80 acre site is located 1.1 miles west of the OGS Project in an unincorporated portion of Contra Costa County. This undeveloped site experiences weeds, scattered trash, and broken pavement. There are indications, but no evidence, that combustible substances might be present at the site. The site is zoned Heavy Industrial and is bordered by the Contra Costa Power Plant (where the Marsh Landing Generating Station will be constructed) to the east, the San Joaquin River to the north, Gaylord Container Facility to the west, and an undeveloped parcel to the south. The nearest residence is located about 480 feet to the south and the nearest school is 0.52 miles southwest. The Applicant does not own the site and its ability to obtain site control is unknown.

Water would be provided by tapping into an existing pipeline to the Contra Costa Power Plant, by way of a 500 foot connection. A 1.8-mile recycled water connection would be required to connect to the City of Antioch's new recycled water line on 'A' Street. A 3.2-mile transmission line would connect to the Contra Costa Substation.

The transmission route could follow Wilbur Avenue east under Highway 160, and turn south on Bridgehead Road to meet the proposed site. It would then use the existing transmission corridor to the substation. A 1.1-mile natural gas line – potentially following Wilbur Avenue to the east and Bridgehead Road to the south – would tie into the Antioch Terminal. (Exs. 1, p. 6-4; 300, pp. 6-10 -12.)

d. Alternative Site 4: Sandy Lane Site

This 30-acre Sandy Lane site is located 0.6 miles south of the OGS Project, in the City of Oakley. The site is actively farmed, and contains a large building (possibly a warehouse) in the southwest portion. The site and parcels immediately to the west, north, and east are zoned Light Industrial. The parcels include agricultural, residential, and light industrial uses. The nearest sensitive receptor is 120 feet south of the site. The nearest school is 600 feet to the east. The Applicant does not own the site and its ability to obtain site control is unknown.

Water could be provided by tapping into an existing line along Sandy Road. Alternatively, an approximately 0.9 mile connection would be required to tie into the existing DuPont water system. For recycled water, a 3.2-mile connection would be required to reach the ISD's treatment plant. Wastewater would be returned to the ISD. A 1.9-mile transmission line would connect to the Contra Costa Substation to the west. The transmission route would travel west from the site along Oakley Road and then slightly north (east of Highway 160) to join the existing corridor that would be used for the OGS Project. A 1-mile natural gas line would tie into the Antioch Terminal; running east from the site along Oakley Road, and then north on Bridgehead Road. (Exs. 1, p. 6-5; 300, pp. 6-12- 6-14.)

Alternatives Tables 1 and **2** below summarize the environmental and project development constraints of the alternative sites as compared to the OGS Project. (Ex. 300, pp. 6-14 - 6-15.)

Alternatives Table 1
Comparison of Approximate Length of Linear Facilities/Distance to Receptors

	OGS Site	18th Street Alternative Site	Wilbur Avenue Alternative Site	Riverfront Site	Sandy Lane Site
Transmission Line Length (to Contra Costa Substation)	2.4 miles (entirely in existing corridor)	2.1 miles (partially in existing corridor)	2.4 miles (partially in existing corridor)	3.2 miles (partially in existing corridor)	1.9 miles (partially in existing corridor)
Gas Pipeline Length (to Antioch Terminal)	140 feet	0.6 miles	0.5 miles	1.1 miles	1.0 miles
Potable Water Connections	[Onsite]	<500 feet	<500 feet	<500 feet	<500 feet or 0.9 miles
Recycled Water Connections	2.5 to 3.2 miles to ISD	2.6 miles to City of Antioch pipeline	2.2 miles to City of Antioch pipeline	1.8 miles to City of Antioch pipeline	3.2 miles to ISD
Distance to Sensitive Receptors (nearest residence)	900 feet	120 feet	1,200 feet	500 feet	120 feet
Distance to Schools	0.4 miles	0.25 miles	0.48 miles	0.52 miles	0.14 miles

Source: Ex. 300, p. 6-14

TABLE 6.4-2
Environmental and Project Development Constraints of the CCGS and Alternative Sites

Site or Alternative	CCGS Site	18th Street Site	Wilbur Avenue Site	Riverfront Site	Sandy Lane Site
Site control	Yes	No	No	No	No
Brownfield site	Adjacent	No	No	Yes	No
Land Use and zoning	Zoned as HI – Heavy Industrial, power plants are an allowable use and designated in the General Plan for Utility Energy	Zoned as PBC/C-3, Planned Business Center and Planned Development District; power plants are not an allowable use, and a zoning and General Plan amendment would be needed	Zoned as HI – Heavy Industrial, power plants are an allowable use	Zoned as HI – Heavy Industrial, power plants are an allowable use	Zoned as P-1RA, Redevelopment; power plants may not be an allowable use.
California Department of Conservation Designation	100% Farmland of Statewide Importance	30% Farmland of Statewide Importance 70% Other	50% Unique Farmland 50% Farmland of Local Importance	Urban and Built Up	Urban and Built Up
Williamson Act Contract Sensitive noise receptors nearby Visual resources	No Nearest residence ~900 ft southwest DuPont facility and screening trees located to the north and east of the proposed site blocking views for viewers to north and east; SR 160 blocks views from the west; few residences in surrounding area	No Nearest residence ~120 feet south Industrial facilities (including two power plants) located north and northeast, providing limited screening for viewers to the north; no screening to the south, west, or southeast; Several residential areas to the southwest and west	No Nearest residence ~1,200 feet west Industrial facilities (including two power plants) located north and northeast, providing limited screening for viewers to the north; no screening to the south, west, or southeast; several residential areas to the southwest and west	No Nearest residence ~480 feet south Industrial facilities (including two power plants) located north and northeast, providing limited screening for viewers to the north; no screening to the south, west, or southeast; several residential areas to the southwest and west	No Nearest residence ~120 feet south Residential areas located to the north, south, east, and west, including a school 700 feet to the east; an industrial facility is present immediately southwest, which may block some views

Site or Alternative	CCGS Site	18th Street Site	Wilbur Avenue Site	Riverfront Site	Sandy Lane Site
Biological resources	Land is actively farmed with vineyards; a 0.62-acre protected wetland is located on the eastern boundary; may provide limited habitat for wildlife and ground-nesting birds	Site is undeveloped and surrounded by actively farmed fields; may provide limited habitat for wildlife and ground-nesting birds	Western portion of site is actively farmed; eastern portion is undeveloped and next to large industrial facilities to the north and east; may provide limited habitat for wildlife and ground-nesting birds	Site is undeveloped and next to large industrial facilities to the east; northern portion of site borders the San Joaquin River; may provide limited habitat for wildlife and ground-nesting birds	Site is actively farmed; may provide limited habitat for wildlife and ground-nesting birds
Cultural resources	No	Unknown	Unknown	Unknown	Unknown
Significant unmitigated impacts or costly mitigation?	No	Site would need to be rezoned and general plan amended; close to residential subdivisions with no industrial facilities to screen view; located near two other power plants, increases industrial nature of area	Several transmission lines over western portion of the site, rendering half of the site unusable	Site borders San Joaquin River to the north, and old oil storage tanks to the east; contamination from oil storage tanks may extend onto this site	School located 700 feet from the site, which may lead to permitting obstacles; residential receptors located to the north, south, east, and west; a small industrial facility to the southwest may block view slightly, but noise and visual impacts will be greater at this site

Finally, regarding alternative sites, Staff identified and ultimately rejected properties within Western Contra Costa County. The evidence indicates that Staff also considered industrial parcels in Richmond, Pinole, and Martinez in major transmission corridor areas in view of the concentration of power plants in the Pittsburg/Antioch/Oakley area. Staff concluded that the few vacant industrial sites near transmission lines have insufficient acreage. Staff also found that the larger brownfield sites in the region are primarily in use as oil refineries, and unavailable for the OGS project. (Ex. 300, pp. 6-15 - 6-16.)

Based on the Applicant's and Staff's respective analyses, we find that that none of the alternative sites is superior to the proposed OGS Project site.

4. Alternative Technologies

The evidence describes and evaluates various generation technology alternatives, as well as conservation and demand side management. The various generation alternatives considered by the parties were all deemed inferior to the project site due to infeasibility, failure to conform to the project objectives, or lack of environmental benefit. The record contains a thorough analysis and discussion of these alternative technologies, which we briefly summarize here. (Exs. 1, pp. 6-20-6-21; 300, pp. 6-16 – 6-19.)

Although viable, solar and wind technologies would require significantly greater land use and would not provide peaking capacity. The evidence further established that geothermal, biomass, and hydroelectric generation technologies would not be feasible in Eastern Contra Costa County. Similarly, biomass is not feasible given the project objectives because of the limited energy production and potential increases in air emissions. No evidence suggests that an alternative fuel source would be superior to that proposed for the OGS Project.

One alternative to meeting California's electricity demand with new generation is to reduce the demand for electricity. Such conservation and demand side measures include reducing energy use by increasing energy efficiency and conservation, implementing commensurate building and appliance standards, and addressing load management and fuel substitution. (*Id*.)

Even with a great variety of federal, state, and local demand side management programs, the state's electricity use is still increasing as a result of population growth and business expansion. Current demand side programs are not sufficient to satisfy future electricity needs, nor is it likely that even more

aggressive demand side programs could accomplish this, given the economic and population growth rates in recent years. Therefore, although it is likely that federal, state, and local demand side programs will receive even greater emphasis in the future, both new generation and new transmission facilities are needed in the immediate future and beyond to maintain adequate supplies. (Ex, 300, p. 6-16.)

The evidence also presents a thorough analysis of generation technologies that could use the natural gas readily available from the existing transmission system as well as an analysis of alternatives for power plant cooling, NOx control, and waste discharge. (Ex. 1, pp. 6-18 – 6-20, 6-21 – 6-22.) None of the alternatives were shown to be superior to the technologies proposed for the OGS Project.

5. Alternative Linear Routes and Water Supply Options

a. Transmission Line Route

The Applicant identified an alternative 2.3 mile transmission route along East 18th Street/Main Street that follows an existing transmission corridor for the last 1,300 feet. The evidence and analysis of record indicates that this alternate route provides no advantages over the proposed OGS route; instead, this alternative would result in greater impacts to traffic and residences/businesses along heavily developed East 18th Street. (Exs. 1, pp. 6-15, 6-18; 300, p. 6-19.)

b. Natural Gas Line Route

Natural gas would be supplied by PG&E Line 303 via an approximately 300 foot-long connection to the gas metering station. The project owner may also choose to include a similar secondary natural gas supply connection from PG&E Line 400. The evidence establishes that because the routes to these PG&E lines represent the shortest distances to the Antioch Terminal, consideration of other routes is unnecessary. (Exs. 1, p. 6-15; 300, p. 6-19.)

c. Water Supply

As discussed above, the project's initial water supply will come from the Diablo Water District. If connection to ISD's yet to be constructed recycled water pipeline is subsequently proven feasible and approved by the Energy Connection, the project will convert to recycled water use under the requirements set forth in Condition of Certification **SOIL&WATER-4**.

d. Wastewater Discharge

The OGS would annually discharge wastewater to an existing ISD sewer line located in Main Street by way of construction of a new force main in Bridgehead Road, which borders the west side of the site. Alternative wastewater routes were not evaluated due to the short length and direct connection to ISD's sewer line. (Exs. 1, pp. 6-21-6-22; 300, pp. 6-19 – 6-20.)

6. No Project Alternative

CEQA Guidelines and Energy Commission regulations require consideration of the "no project" alternative, which assumes that the project is not constructed. Under CEQA, the "no project" alternative is compared to the proposed project and determined to be superior, equivalent, or inferior to it. The CEQA Guidelines state that "the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." [Cal. Code Regs., tit. 14, § 15126.6, subd. (1).]

As discussed throughout this Decision, including the Land **Use, Public Health**, **Air Quality**, and **Biological Resources** sections of this Decision, we evaluated the project's environmental impacts based on the extensive evidence of record and find that impacts from the OGS Project will be avoided or mitigated to less than significant levels with implementation of the Conditions of Certification.

Yet, Intervener Robert Sarvey (Sarvey) in testimony and a post-hearing brief asserts that the "no project" alternative is environmentally superior because if the project is not constructed there will be no impacts to public health, land use, or biological resources requiring mitigation. (Ex. 400.) Although Sarvey does not acknowledge that "[d]enial of a proposed project does not always guarantee the permanent preservation of existing environmental conditions," the CEQA Guidelines expressly recognize this proposition. (*Remy et al*, Guide to CEQA, p. 208, Eleventh ed., 2007.)

The CEQA Guidelines provide in pertinent part:

> (2) The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, ***as well as what would be reasonably expected to***

> ***occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services***. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

(Cal. Code Regs., tit 14, § 15126.6, subd. (e)(2), **emphasis added**.)

As further explained by the Guidelines, our evaluation of impacts "… would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the no project alternative means "no build" wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." [Cal. Code Regs., tit 14, § 15126.6, subd. (e)(3)(B).]

Staff submitted testimony that in the absence of the OGS Project, other power plants could likely be constructed in the project area given the project site's Heavy Industrial zoning designation and General Plan land use designation of Utility Energy. Under the pending redevelopment of the site and larger DuPont property as SP-3, the site would retain its Utility Energy designation. (Ex. 300, p. 6-3.) All these designations contemplate the conversion of the site (currently used for vineyard production) and surrounding DuPont property for development. Furthermore, according to Staff, new plants constructed in the area could utilize undeveloped land (greenfield sites), possibly creating significant environmental impacts. If no new natural gas plants were constructed, reliance on older power plants may increase. These plants could consume more fuel and emit more air pollutants per kilowatt-hour generated than the proposed project. In the near term, the more likely result is that existing plants, many of which produce higher levels of pollutants, could operate more than they do now. Also, as noted by Staff, in the absence of the OGS Project other plants would be sited elsewhere in California to serve the demand that could have been met by the OGS Project. (Ex. 300, p. 6-20.) We are persuaded by the Applicant's and Staff's evidence, that the "no project" alternative is not environmentally superior to the OGS

Project. (Ex. 300, p. 6-20.) Sarvey provided no evidence or argument suggesting that the project site would not or could not be developed in the absence of the OGS Project.

Relying on Energy Commission forecasting documents published from 2006 through 2011, Sarvey also argues for the "no project" alternative on the grounds that there is no need for the OGS Project. (Ex. 400.) As correctly stated by Sarvey, the Energy Commission's March 2011 *Revised Short-Term (2011-2012) Peak Demand Forecast* predicts that electrical demand in the PG&E service territory will be less than the demand estimated in the current adopted *2009 IEPR.* However, by definition, a forecast is an estimate of facts or trends to calculate or project (some future event of condition) usually as a result of study and analysis of available pertinent data. Although Energy Commission forecasts are instrumental in informing Commission actions, they are not dispositive of the matters they address.

Furthermore, the Commission's siting process is not intended to determine market need for power plants. That determination is made by the CPUC, which, in December 2010 approved the Purchase-Sale Agreement between the Applicant and PG&E for the OGS Project. (Exs. 1 pp. ES-1, 50, p. 2-3; 300, p. 3-1.)

Finally, project "need" is not directly relevant to the "no project" alternative analysis. Instead, as discussed above, the analysis considers what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. We recognize that Staff and the Applicant have woven project benefits into this analysis (i.e. if the project were not built, the region would not benefit from the local and efficient source of 624 MW of new generation and the increased reliability and compensation for the intermittency of renewable energy sources that OGS would provide). However, their insertion of this additional, tangential information into the analysis does not alter the intended purpose and scope of our "no project" evaluation. (Exs. 1. pp. 6-2 -6-3; 300, p. 6-20.)

7. Agency and Public Comments

J. Galey, a member of the public, recommended that rather than purchasing new land for the OGS Project, the Applicant should use the Contra Costa Power Plant (CCPP) site's Units 1 through 3. According to Staff, these CCPP units were built in 1951 and have been retired. Staff further responded that removal of these

units and replacing them with units would increase project costs. Moreover, because the Marsh Landing Generating Station is approved for construction on a portion of the CCPP site, it unlikely that the Applicant would be able to acquire land at this location. Finally, according to Staff, the area occupied by the retired units would be less than a third of the size required by the proposed 22-acre OGS.

In reference to the Preliminary Staff Assessment, the City of Antioch requested the following corrections relating to potable, sewer, and recycled water connections:

- Alternative Site 1- Potable water, wastewater collection, and storm drainage facilities are presently available in E. 18th Street and Drive–in Way. The City of Antioch has a new recycled waterline on 'A' Street; a 2.6-mile connection would be required.
- Alternative Site 2- City of Antioch water pipeline and sewer pipelines are located in Wilbur Avenue. The City of Antioch has a new recycled waterline on 'A' Street; a 2.2-mile connection would be required.
- Alternative Site 3- The City of Antioch has a new recycled waterline on 'A' Street; a 1.8-mile connection would be required.

The Final Staff Assessment and discussion above incorporate the corrections.

In written comments on the PMPD, Intervenor Sarvey asserts that the project is not on a "brownfield" site as that term is defined by the two authorities selected and cited by him. However, as was made clear during Sarvey's cross-examination of Staff during the March 25, 2011 Evidentiary Hearing, Staff stated that it used the term "brownfield" to refer to previously disturbed land. (3/25/11 RT 67.) The evidence establishes that the project will be sited on previously disturbed land.

FINDINGS OF FACT

Based upon the evidence, including that presented on each subject area described in other portions of this Decision, we find and conclude as follows:

1. The record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.

2. The record contains an adequate review of alternative sites, linear routings, fuels, technologies, and the “No Project” alternative.

3. Alternative fuels and technologies are not capable of meeting project objectives.

4. No site alternative identified is capable of meeting the stated project objectives and applicable siting criteria.

5. No feasible alternative site has been identified which would lessen project impacts.

6. The “No Project” alternative would not avoid or substantially lessen potentially significant environmental impacts.

7. Implementation of the Conditions of Certification contained in this Decision will ensure that the OGS Project does not create any significant direct, indirect, or cumulative adverse environmental impacts.

CONCLUSION OF LAW

We conclude, therefore, that the record contains a sufficient analysis of a reasonable range of alternatives and complies with the requirements of the California Environmental Quality Act, the Warren-Alquist Act, and their respective regulations.

No Conditions of Certification are required for this topic.

III. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards, as well as the specific Conditions of Certification adopted as part of this Decision.

SUMMARY OF THE EVIDENCE

The record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Oakley Generating Station is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the Project Owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure, of the Project.

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions," which:

- set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- set forth the requirements for handling confidential records and maintaining the compliance record;
- set forth procedures for settling disputes and making post-certification changes;
- set forth the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed Conditions; and
- set forth requirements for facility closure.

The second general element of the Plan contains the specific "Conditions of Certification." These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. Each Condition also includes a verification provision describing the method of assuring that the Condition has been satisfied.

The contents of the Compliance Plan are intended to be implemented in conjunction with any additional requirements contained in the individual Conditions of Certification.

FINDINGS OF FACT

The record establishes:

1. Requirements contained in the Compliance Plan and in the specific Conditions of Certification are intended to be implemented in conjunction with one another.

2. We adopt the following Compliance Plan as part of this Decision.

CONCLUSIONS OF LAW

1. The compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532.

2. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Oakley Generating Station will be designed, constructed, operated, and closed in conformity with applicable law.

GENERAL CONDITIONS

DEFINITIONS

The following terms and definitions are used to establish when Conditions of Certification are implemented.

PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of fencing, construction trailers, construction trailer utilities, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and/or light vehicles is allowable during site mobilization.

CONSTRUCTION

On-site work to install permanent equipment or structures for any facility.

Ground Disturbance

Construction-related ground disturbance refers to activities that result in the removal of top soil or vegetation at the site beyond site mobilization needs, and for access roads and linear facilities.

Grading, Boring, and Trenching

Construction-related grading, boring, and trenching refers to activities that result in subsurface soil work at the site and for access roads and linear facilities, e.g., alteration of the topographical features such as leveling, removal of hills or high spots, moving of soil from one area to another, and removal of soil.

Notwithstanding the definitions of ground disturbance, grading, boring, and trenching above, construction does **not** include the following:

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in “Construction” 1, 2, 3, or 4 above.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, “commercial operation” begins after the completion of start-up and commissioning, when the power plant has reached reliable steady-state production of electricity at the rated capacity. At the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The Compliance Project Manager (CPM) shall oversee the compliance monitoring and is responsible for:

1. ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision;

2. resolving complaints;

3. processing post-certification changes to the conditions of certification, project description (petition to amend), and ownership or operational control (petition for change of ownership) (See instructions for filing petitions);

4. documenting and tracking compliance filings; and

5. ensuring that compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies, Energy Commission, and staff when handling disputes, complaints, and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, the approval will involve all appropriate Energy Commission staff and management. All submittals must include searchable electronic versions (pdf or MS Word files).

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

The CPM usually schedules pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings is to assemble both the Energy Commission’s and project owner’s technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission’s conditions of certification. This is to confirm that all applicable conditions of certification have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight and to preclude any last minute,

unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

ENERGY COMMISSION RECORD

The Energy Commission shall maintain the following documents and information as a public record, in either the Compliance file or Dockets file, for the life of the project (or other period as required):

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 project owner;

3. all complaints of noncompliance filed with the Energy Commission; and

4. all petitions for project or condition of certification changes and the resulting staff or Energy Commission action.

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance conditions of certification and all other conditions of certification that appear in the Commission Decision are satisfied. The compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, conditions of certification, or ownership. Failure to comply with any of the conditions of certification or the compliance conditions may result in reopening of the case and revocation of Energy Commission certification; an administrative fine; or other action as appropriate. A summary of the Compliance Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section.

COMPLIANCE CONDITIONS OF CERTIFICATION

Unrestricted Access (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegated agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on-site for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

Compliance Record (COMPLIANCE-2)

The project owner shall maintain project files on-site or at an alternative site approved by the CPM for the life of the project, unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, documents submitted as verification for conditions, and other project-related documents.

Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.

Compliance Verification Submittals (COMPLIANCE-3)

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by the CPM.

Verification of compliance with the conditions of certification can be accomplished by the following:

1. monthly and/or annual compliance reports, filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific conditions of certification;

2. appropriate letters from delegate agencies verifying compliance;

3. energy Commission staff audits of project records; and/or

4. energy Commission staff inspections of work, or other evidence that the requirements are satisfied.

Verification lead times associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the project by AFC number, the appropriate condition(s) of certification by condition number(s), and a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and CEC submittal number.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All hardcopy submittals shall be addressed as follows:

Craig Hoffman
Compliance Project Manager
(09-AFC-4C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

Those submittals shall be accompanied by a searchable electronic copy, on a CD or by e-mail, as agreed upon by the CPM.

If the project owner desires Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that date is not met.

Pre-Construction Matrix and Tasks Prior to Start of Construction (COMPLIANCE-4)

Prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be submitted in the same format as the compliance matrix described below.

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development.

If the project owner anticipates commencing project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. Compliance submittals should be completed in advance where the necessary lead time for a required compliance event extends beyond the date anticipated for start of construction. The project owner must understand that the submittal of compliance documents prior to

project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change, based upon the Commission Decision.

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Energy Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

Compliance Matrix (COMPLIANCE-5)

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all conditions of certification in a spreadsheet format. The compliance matrix must identify:

1. the technical area;
2. the condition number;
3. a brief description of the verification action or submittal required by the condition;
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. the expected or actual submittal date;
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable;
7. the compliance status of each condition, e.g., "not started," "in progress" or "completed" (include the date); and
8. if the condition was amended, the date of the amendment.

Satisfied conditions shall be placed at the end of the matrix.

Monthly Compliance Report (COMPLIANCE-6)

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report

shall include the AFC number and an initial list of dates for each of the events identified on the **Key Events List** found at the end of this section of the Decision.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and an electronic searchable version of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum:

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;

2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, as well as the conditions they satisfy and submitted as attachments to the Monthly Compliance Report;

3. an initial, and thereafter updated, compliance matrix showing the status of all conditions of certification;

4. a list of conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the condition;

5. a list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;

6. a cumulative listing of any approved changes to conditions of certification;

7. a listing of any filings submitted to, or permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;

9. a listing of the month's additions to the on-site compliance file; and

10. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions.

All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by the CPM.

Annual Compliance Report (COMPLIANCE-7)

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of

commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project, unless otherwise specified by the CPM. Each Annual Compliance Report shall include the AFC number, identify the reporting period, and shall contain the following:

1. an updated compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed);

2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;

3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter with the condition it satisfies, and submitted as attachments to the Annual Compliance Report;

4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;

5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;

6. a listing of filings submitted to, or permits issued by, other governmental agencies during the year;

7. a projection of project compliance activities scheduled during the next year;

8. a listing of the year's additions to the on-site compliance file;

9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date (see Compliance Conditions for Facility Closure addressed later in this section); and

10. a listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters.

Confidential Information (COMPLIANCE-8)

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Executive Director with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501, et. seq.

Annual Energy Facility Compliance Fee (COMPLIANCE-9)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay an annual compliance fee, which is adjusted annually. Current Compliance fee information is available on the Energy Commission's website http://www.energy.ca.gov/siting/filing_fees.html. You may also contact the CPM for the current fee information. The initial payment is due on the date of the Business Meeting at which the Energy Commission adopts the final decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.

Reporting of Complaints, Notices, and Citations (COMPLIANCE-10)

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints, or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with a date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at:
http://www.energy.ca.gov/sitingcases/power_plants_contacts.html.

Any changes to the telephone number shall be submitted immediately to the CPM, who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** Conditions of Certification, found in the **NOISE** section of this Decision. All other complaints shall be recorded on the complaint form (Attachment A).

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws,

Ordinances, Regulations, and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

There are at least three circumstances in which a facility closure can take place: planned closure, unplanned temporary closure, and unplanned permanent closure**.**

CLOSURE DEFINITIONS

Planned Closure

A planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

Unplanned Temporary Closure

An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency.

Unplanned Permanent Closure

An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner implements the on-site contingency plan. It can also include unplanned closure where the project owner fails to implement the contingency plan, and the project is essentially abandoned.

COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

Planned Closure (COMPLIANCE-11)

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least 12 months (or other period of time agreed to by the CPM) prior to the commencement of closure activities. The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site;

2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;

3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and

4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

Prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Energy Commission CPM for the purpose of discussing the specific contents of the plan.

In the event that there are significant issues associated with the proposed facility closure plan's approval, or if the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

As necessary, prior to or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until the Energy Commission approves the facility closure plan.

Unplanned Temporary Closure/On-Site Contingency Plan (COMPLIANCE-12)

In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an on-site contingency plan in place. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner.

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (Also see specific conditions of certification for the technical areas of **Hazardous Materials Management** and **Waste Management** in this Decision.)

In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the on-site contingency plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unplanned temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

If the CPM determines that an unplanned temporary closure is likely to be permanent, or for a duration of more than 12 months, a closure plan consistent with the requirements for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

Unplanned Permanent Closure/On-Site Contingency Plan (COMPLIANCE-13)

The on-site contingency plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure.

In addition, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment.

In the event of an unplanned permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities.

A closure plan, consistent with the requirements for a planned closure, shall be developed and submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

Post Certification Changes to the Energy Commission Decision: Amendments, Ownership Changes, Staff Approved Project Modifications and Verification Changes (COMPLIANCE-14)

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility.

It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769.

Implementation of a project modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply.

Amendment

The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards the petition will be processed as a formal amendment to the final decision, which requires public notice and review of the Energy Commission staff analysis and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide a sample petition to use as a template.

Change of Ownership

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769 (b). This process requires public notice and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). Upon request, the CPM will provide a sample petition to use as a template.

Staff Approved Project Modification

Modifications that do not result in deletions or changes to conditions of certification, that are compliant with laws, ordinances, regulations and standards and will not have significant environmental impacts may be authorized by the CPM as a Staff approved project modification pursuant to section 1769(a) (2). Once staff files an intention to approve the proposed project modifications, any person may file an objection to staff's determination within 14 days of service on the grounds that the modification does not meet the criteria of section 1769 (a)(2). If a person objects to Staff's determination, the petition must be processed as a formal amendment to the Decision and must be approved by the full commission at a noticed business meeting or hearing.

Verification Change

A verification may be modified by the CPM without requesting an amendment to the Decision if the change does not conflict with the conditions of certification and provides an effective alternate means of verification.

CBO DELEGATION AND AGENCY COOPERATION

In performing construction and operation monitoring of the project, Energy Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Energy Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. Energy Commission staff retains CBO authority when selecting a delegate CBO, including enforcing and interpreting state and local codes, and use of discretion, as necessary, in implementing the various codes and standards.

Energy Commission staff may also seek the cooperation of state, regional, and local agencies that have an interest in environmental protection when conducting project monitoring.

ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code, sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Energy Commission Decision. The specific action and

amount of any fines the Energy Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider.

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1237, but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by future law or regulations.

Informal Dispute Resolution Process

The following procedure is designed to informally resolve disputes concerning the interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate an informal dispute resolution process. Disputes may pertain to actions or decisions made by any party, including the Energy Commission's delegate agents.

This process may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1237, but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and conditions of certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The process 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 brought before the full Energy Commission for consideration via the complaint and investigation procedure.

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for an informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request

and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter. Within seven working days of the CPM's request, provide a written report to the CPM of the results of the investigation, including corrective measures proposed or undertaken. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to also provide an initial verbal report, within 48 hours.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures proposed or undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;

2. secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;

3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner;

4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any understandings reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230, et. seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

Any person may file a complaint with the Energy Commission's Dockets Unit alleging noncompliance with a Commission decision adopted pursuant to Public Resources Code section 25500. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1237.

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Obtain Site Control	
Online Date	
POWER PLANT SITE ACTIVITIES	
Start Site Mobilization	
Start Ground Disturbance	
Start Grading	
Start Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Gas Turbine	
Obtain Building Occupation Permit	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	
Start T/L Construction	
Synchronization with Grid and Interconnection	
Complete T/L Construction	
FUEL SUPPLY LINE ACTIVITIES	
Start Gas Pipeline Construction and Interconnection	
Complete Gas Pipeline Construction	
WATER SUPPLY LINE ACTIVITIES	
Start Water Supply Line Construction	
Complete Water Supply Line Construction	

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-1	Unrestricted Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COMPLIANCE-2	Compliance Record	The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files.
COMPLIANCE-3	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent.
COMPLIANCE-4	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until the all of the following activities/submittals have been completed: • property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns, • a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction, • all pre-construction conditions have been complied with, • the CPM has issued a letter to the project owner authorizing construction.
COMPLIANCE-5	Compliance Matrix	The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance conditions of certification.
COMPLIANCE-6	Monthly Compliance Report including a Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Energy Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-7	Annual Compliance Reports	After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.
COMPLIANCE-8	Confidential Information	Any information the project owner deems confidential shall be submitted to the Energy Commission's Executive Director with a request for confidentiality.
COMPLIANCE-9	Annual fees	Payment of Annual Energy Facility Compliance Fee
COMPLIANCE-10	Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations.
COMPLIANCE-11	Planned Facility Closure	The project owner shall submit a closure plan to the CPM at least 12 months prior to commencement of a planned closure.
COMPLIANCE-12	Unplanned Temporary Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-13	Unplanned Permanent Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-14	Post-certification changes to the Decision	The project owner must petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility.

COMPLAINT LOG NUMBER:_____ DOCKET NUMBER:_____

PROJECT NAME:_____

COMPLAINANT INFORMATION

NAME:_____ PHONE NUMBER:_____

ADDRESS:_____

COMPLAINT

DATE COMPLAINT RECEIVED:_____ TIME COMPLAINT RECEIVED:_____

COMPLAINT RECEIVED BY: ☐ TELEPHONE ☐ IN WRITING (COPY ATTACHED)

DATE OF FIRST OCCURRENCE:_____

DESCRIPTION OF COMPLAINT (INCLUDING DATES, FREQUENCY, AND DURATION):_____

_____

_____

FINDINGS OF INVESTIGATION BY PLANT PERSONNEL:_____

_____

_____

DOES COMPLAINT RELATE TO VIOLATION OF A CEC REQUIREMENT? ☐ YES ☐ NO

DATE COMPLAINANT CONTACTED TO DISCUSS FINDINGS:_____

DESCRIPTION OF CORRECTIVE MEASURES TAKEN OR OTHER COMPLAINT RESOLUTION:_____

_____

DOES COMPLAINANT AGREE WITH PROPOSED RESOLUTION? ☐ YES ☐ NO

IF NOT, EXPLAIN:_____

_____

CORRECTIVE ACTION

IF CORRECTIVE ACTION NECESSARY, DATE COMPLETED:_____

DATE FIRST LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

DATE FINAL LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

OTHER RELEVANT INFORMATION:_____

_____

_____

"This information is certified to be correct."

PLANT MANAGER SIGNATURE:_____ DATE:_____

(ATTACH ADDITIONAL PAGES AND ALL SUPPORTING DOCUMENTATION, AS REQUIRED)

IV. ENGINEERING ASSESSMENT

The broad engineering assessment conducted for the OGS Project consists of separate analyses that examine facility design, engineering, efficiency, and reliability aspects. These analyses include the on-site power generating equipment and project-related linear facilities.

A. FACILITY DESIGN

This review covers several technical disciplines including the civil, electrical, mechanical, and structural engineering elements related to project design and construction. In considering the adequacy of the design plans, the Energy Commission reviews whether the power plant and linear facilities are described with sufficient detail to ensure that the project can ultimately be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). The review also includes, as appropriate, the identification of special design features that are necessary to address unique site conditions that could adversely impact public health and safety, the environment, or the operational reliability of the project. The evidence on this topic was uncontested. (3/15/11 RT 67-77; Exs. 1, § 2.1, Appendix 2, 46; 50; 55, 300, §5.1.)

Facilities Design Table 1 below identifies the primary LORS applicable to the OGS.

FACILITY DESIGN Table 1
Key Engineering Laws, Ordinances, Regulations and Standards (LORS)

Applicable LORS	Description
Federal	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards
State	2010 (or the latest edition in effect) California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	Contra Costa County regulations and ordinances City of Oakley regulations and ordinances
General	American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)

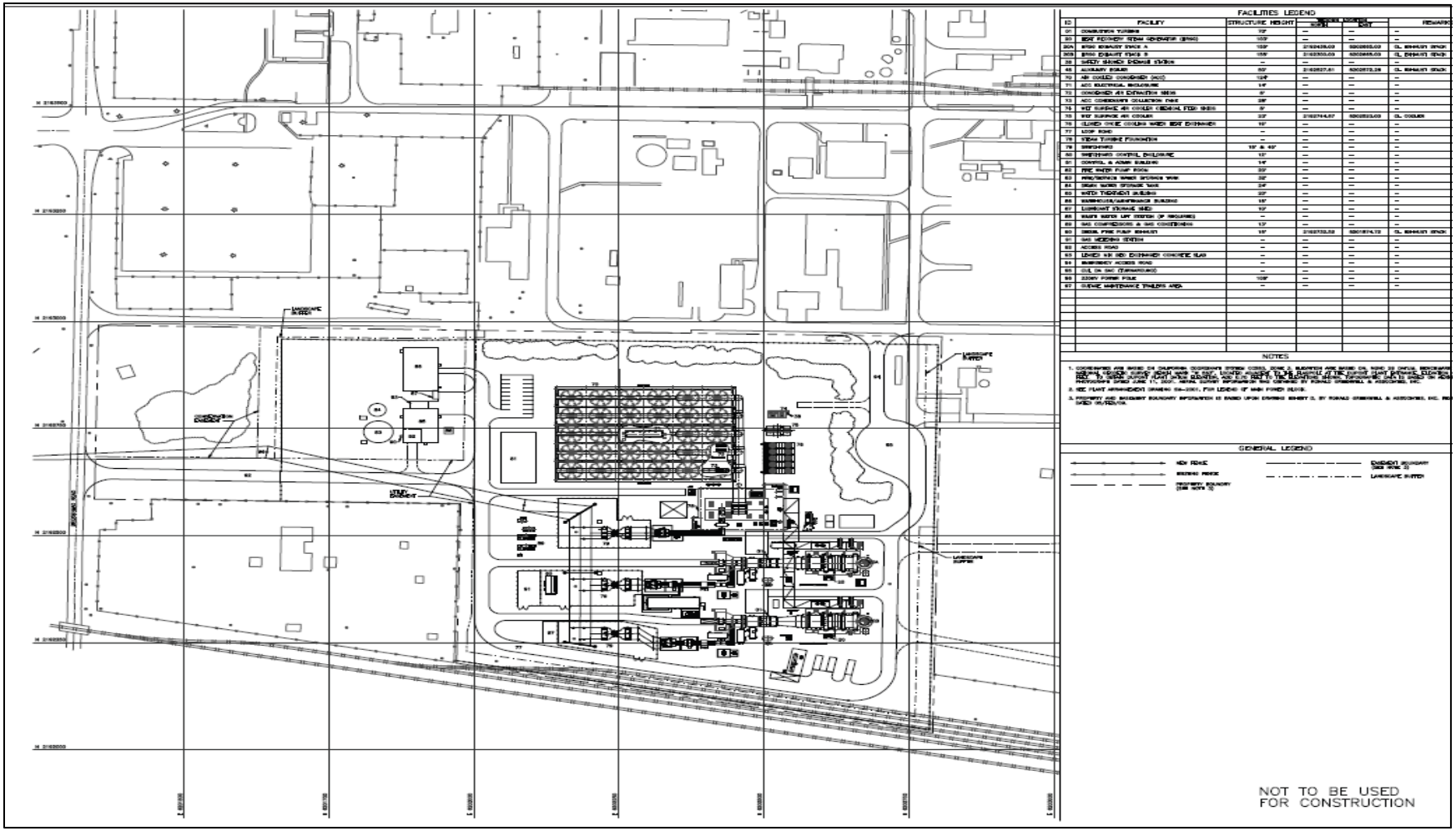
Source: Exhibit 300

SUMMARY AND DISCUSSION OF THE EVIDENCE

As is more fully discussed in the **Project Description** section of this Decision, the OGS Project will be located on 21.95 acres in the City of Oakley, California and a portion of the transmission line will be located in the City of Antioch, California. The facility design also includes new natural gas supply provided by Pacific Gas and Electric (PG&E).

Facility Design Figure 1 below depicts the proposed general arrangement of OGS.

FACILITY DESIGN - Figure 1



Source: Exhibit 1.

1. Site Preparation and Development

The Applicant proposes to use accepted industry standards, design standards, and construction methods. The evidence establishes that Staff evaluated whether the project will be built in accordance with applicable engineering LORS and whether it will adversely impact public health and safety. Thus, Staff assessed the Applicant's proposed design criteria and construction methods for grading, flood protection, erosion control, site drainage, and site access as well as design criteria for constructing the natural gas and transmission line facilities. (Exs. 1, pp. 2-35 - 2-36, Appendixes 2B – 2H; 300, pp. 5.1-2 - 5.1-3.)

Staff concluded that the project and its linear facilities as proposed in preliminary design form, will comply with all applicable site preparation LORS with implementation of Staff-proposed Conditions of Certification **GEN-1** through **GEN-8**, **CIVIL-1** through **CIVIL-4**, **STRUC-1** through **STRUC-4**, **MECH-1** through **MECH-3**, and **ELEC-1** (discussed below) and **Geology and Paleontology** Conditions of Certification **PAL-1** through **PAL-7**. (Ex. 300, p. 5.1-3.)

We concur with Staff's determination. Collectively, the proposed conditions (1) require the OGS Project to be designed and constructed in accordance with specified engineering LORS and (2) mandate design review, plan checking, and field inspections by the chief building official (CBO) or an Energy Commission delegate. For instance, Condition **GEN-1** requires the project owner to design, construct, and inspect the project in accordance with the 2010 California Building Standards Code, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and other applicable codes and standards in effect when the design and construction of the project actually begin.

If the initial designs are submitted to the chief building official (CBO) for review and approval after the update to the 2010 CBSC takes effect, the 2010 CBSC provisions shall be superseded and replaced by the updated provisions.

GEN-2, GEN-3, GEN-7, GEN-8, STRUC-1 – **STRUC-3, MECH-1, MECH-3, ELEC-1** require specified reviews by and approvals from the CBO, Energy Commission Compliance Program Manager (CPM), or both. **GEN-4** – **GEN–6** require registered engineers and qualified inspectors to supervise various aspects of design and implementation. **STRUC-4** mandates that tanks and

vessels containing quantities of toxic or hazardous material must comply with the 2010 version of the California Building Code. Compliance with federal and state Occupational Safety and Health Standards (OSHS) is mandated by Condition **MECH-2**.

As more fully discussed in the **Geology and Paleontology** section of this Decision, implementation of **Geology and Paleontology** Conditions of Certification **PAL-1** through **PAL-7** will mitigate potential construction-related impacts to paleontological resources to less than significant levels. Their implementation requires significant information sharing and interaction among the project owner, paleontological resource monitors, and the CPM.

Thus, based on the evidence, we find the compliance with the above-discussed Conditions of Certification will ensure that the project is built in conformance with applicable LORS and adequately protects public health and safety.

2. Major Structures, Systems, and Equipment

Major structures, systems, and equipment are necessary for power production, costly or time consuming to repair or replace, used for the storage, containment, or handling of toxic/hazardous materials, or could become potential health and safety hazards if not constructed according to applicable engineering LORS. The Applicant provided design and engineering information and data for each of the following major systems:

- Power generation
- Heat dissipation
- Cooling water supply system
- Air emission control system
- Waste disposal system
- Noise abatement system
- Switchyard/transformer systems
- Natural gas supply. (Exs. 1, §§ 2.0, 3.0, 4.0, 5.1, 5.7, 5.14, Appendixes 2C - 2E.)

With implementation of Conditions of Certification **GEN-1** and **GEN-2** described above, the project must be designed and constructed in accordance with the most current version of the California Building Standards Code in effect at the time of project construction. Furthermore, the project owner must submit a

schedule of facility design submittals and master drawings and master specification lists to the CPM and CBO before submitting initial engineering designs for CBO review and approval.

Because the California Building Code requires certain power plant structures to undergo dynamic lateral force (structural) analysis to determine their seismic design criteria while allowing others to be designed using a static analysis procedure, Condition of Certification **STRUC-1** ensures the project will submit its proposed lateral force procedures to the CBO for review and approval before construction begins. (Ex. 300, p. 5.1-3.)

We find that implementation of the above-described mitigation measures will ensure that the project's major structures, systems, and equipment are designed and constructed to reduce or avoid impacts that include potential health and safety hazards.

3. Project Quality Procedures

The Applicant generally described the quality control plan that it would implement at the OGS facility. The Applicant identified categories or stages of activities to which the quality assurance planning will apply. These categories encompass conceptual design criteria, detail design, procurement specification preparation, manufacturer's control and surveillance, manufacturer data review, receipt inspection, construction/installation, system/component testing, and plant operation. (Exs. 1, p.p. 2-42 - 2-43, Appendix 2B – 2H; 300, p. 5.1-3.)

Staff evaluated the Applicant's project quality control plans and independently determined that the quality program is adequate to ensure that systems and components will be designed, fabricated, stored, transported, installed, and tested in accordance with all appropriate power plant technical codes and standards. Thus, to ensure that the project owner does in fact implement the proposed quality assurance/quality control (QA/QC) program, we find that it necessary to explicitly require compliance with the design and construction – related Conditions of Certification set forth below. (Ex. 300, p. 5.1-3.)

4. Compliance Monitoring

The California Building Code authorizes and directs the CBO to enforce the Code's provisions. The Energy Commission serves as the CBO for project's under its jurisdiction and as appropriate, interprets the Code and adopts clarifying regulations. (Ex. 300, pp. 5.1-3 - 5.1-4.)

The Commission may delegate CBO authority to local building officials and/or independent consultants to carry out design review and construction inspections. For this project, engineering and compliance staff will invite Contra Costa County, the City of Oakley, or a third-party engineering consultant to act as delegate CBO.

Staff has proposed – and we have adopted – the Conditions of Certification below to ensure public health and safety and compliance with engineering design LORS. Some of these conditions address the roles, responsibilities, and qualifications of the engineers who will design and build the proposed project. Under these Conditions of Certification, each element of the project's construction must be approved by the CBO before it is performed. The conditions also require qualified special inspectors perform or oversee special inspections required by all applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility in scheduling construction activities, the Conditions of Certification are written so that no element of construction (of permanent facilities subject to CBO review and approval) that could be difficult to reverse or correct can proceed without prior CBO approval. Elements of construction that are not difficult to reverse may proceed without approval of the plans. The project owner bears the responsibility to fully modify construction elements in order to comply with all design changes resulting from the CBO's subsequent plan review and approval process. (Ex. 300, p. 5.1-4.)

5. Facility Closure

The evidentiary record also addresses project closure activities, which could range from "mothballing" the facility (i.e., closing or not using for a long time with the possibility of opening or being used again in the future) to removing all equipment and restoring the site. To ensure that decommissioning of the OGS will conform to applicable LORS and be completed in a manner that protects the environment and public health and safety, the project owner is required to submit a decommissioning plan which will identify: decommissioning activities; applicable LORS in effect when decommissioning occurs; activities necessary to restore the site, if appropriate; and decommissioning alternatives. (Ex. 300, pp. 5.1-4 - 5.1-5.) Related requirements are discussed in the **Compliance and Closure** section of this Decision.

6. Compliance with LORS

As discussed above and shown by the language of the Conditions of Certification, the project will comply with the federal and state occupational safety and health requirement and the requirements of the most current California Building Standards Code (and the codes contained therein).

The evidence also shows that the project's design and construction will comply with the applicable local and general codes identified above in **Facility Design Table 1** and **Appendix A** to this Decision. Appendix 2 to the Applicant's AFC contains a detailed discussion of these codes and the practices that will be undertaken to ensure compliance.

FINDINGS OF FACT

Based on the evidence, we make the following findings and reach the following conclusions:

1. The OGS Project is currently in the preliminary design stage.

2. The evidentiary record identifies the applicable laws, ordinances, regulations, and standards that apply to this project.

3. The evidentiary record contains an independent evaluation of the Applicant's proposed design criteria, including identification of criteria essential to public health and safety.

4. The evidentiary record contains sufficient information to establish that the proposed facility can be designed and constructed in conformity with the applicable LORS as discussed above and also set forth in the appropriate portion of **Appendix A** of this Decision.

5. The Conditions of Certification set forth below provide, in part, that independent qualified personnel will perform design review, plan checking, and field inspections of the proposed project.

6. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed both in accordance with applicable law and in a manner that protects environmental quality as well as public health and safety.

7. The **General Conditions,** included in the **Compliance** section of this Decision, establish requirements to be followed in the event of facility closure.

CONCLUSION OF LAW

Implementation of the Conditions of Certification listed below will ensure that the OGS Project will be designed and constructed in conformance with the applicable laws pertinent to the engineering aspects summarized in **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct, and inspect the project in accordance with the 2010 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the Conditions of Certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2010 CBSC is in effect, the 2010 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.

Verification: Within 30 days following receipt of the certificate of occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO.

Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work.

GEN-2 Before submitting the initial engineering designs for CBO review, the project owner shall furnish the CPM and the CBO with a schedule of facility design submittals, and master drawings and master specifications list. The master drawings and master specifications list shall contain a list of proposed submittal packages of designs, calculations, and specifications for major structures, systems, and equipment. Major structures, systems, and equipment are structures and their associated components or equipment that are necessary for power production, costly or time consuming to repair or replace, are used for the storage, containment, or handling of hazardous or toxic materials, or could become potential health and safety hazards if not constructed according to applicable engineering LORS. The schedule shall contain the date of each submittal to the CBO. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM upon request.

Verification: At least 60 days (or a project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, and the master drawings and master specifications list of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures, systems, and equipment defined above in Condition of Certification **GEN-2**. Major structures and equipment shall be added to or deleted from the list only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

GEN-3 The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2010 CBC, adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be otherwise agreed upon by the project owner and the CBO.

Verification: The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next monthly compliance report indicating that applicable fees have been paid.

GEN-4 Prior to the start of rough grading, the project owner shall assign a California- registered architect, or a structural or civil engineer, as the resident engineer (RE) in charge of the project. All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the Conditions of Certification in the **Transmission System Engineering** section of this Decision.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project, respectively. A project may be divided into parts, provided that each part is clearly defined as a distinct unit. Separate assignments of general responsibility may be made for each designated part.

The RE shall:

1. Monitor progress of construction work requiring CBO design review and inspection to ensure compliance with LORS;
2. Ensure that construction of all facilities subject to CBO design review and inspection conforms in every material respect to applicable LORS, these Conditions of Certification, approved plans, and specifications;
3. Prepare documents to initiate changes in approved drawings and specifications when either directed by the project owner or as required by the Conditions of the project;
4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets of stamped drawings, plans, specifications, and any other required documents;
5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and
6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests when they do not conform to approved plans and specifications.

The resident engineer (or his delegate) must be located at the project site, or be available at the project site within a reasonable period of time, during any hours in which construction takes place.

The RE shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

Verification: At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has five days to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: a civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; a mechanical engineer; and an electrical engineer. (California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 require state registration to practice as a civil engineer or structural engineer in California). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in the Conditions of Certification in the **Transmission System Engineering** section of this Decision.

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (for example, proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

The project owner shall submit, to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project.

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

   1. Review the foundation investigations, geotechnical, or soils reports prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;
   2. Design (or be responsible for the design of), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and
   3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes to the construction procedures.

B. The soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering, shall:

   1. Review all the engineering geology reports;
   2. Prepare the foundation investigations, geotechnical, or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement or collapse when saturated under load;
   3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the 2010 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and
   4. Recommend field changes to the civil engineer and RE.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations.

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare a final soils grading report; and
2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2010 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both).

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;
2. Provide consultation to the RE during design and construction of the project;
3. Monitor construction progress to ensure compliance with engineering LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications, and calculations.

E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform to all of the mechanical engineering design requirements set forth in the Energy Commission's Decision.

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or project owner and CBO approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible

design engineer, mechanical engineer, and electrical engineer assigned to the project.

The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, including prefabricated assemblies, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2010 CBC. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Inspect the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and
4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.

Verification: At least 15 days (or project owner and CBO approved alternative time frame) prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a

copy of the CBO's approval of the qualifications of all special inspectors in the next monthly compliance report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend required corrective actions. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, applicable sections of the CBC and/or other LORS.

Verification: The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next monthly compliance report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next monthly compliance report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to the CPM a letter stating both that the above documents have been stored and the storage location of those documents.

Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" (Adobe .pdf

6.0 or newer version) files, with restricted (password-protected) printing privileges, on archive quality compact discs.

CIVIL-1 The project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils, geotechnical, or foundation investigations reports required by the 2010 CBC.

Verification: At least 15 days (or project owner and CBO approved alternative time frame) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next monthly compliance report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications, and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area.

Verification: The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

CIVIL-3 The project owner shall perform inspections in accordance with the 2010 CBC. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO.

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a non-conformance report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following monthly compliance report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans.

Verification: Within 30 days (or project owner and CBO approved alternative time frame) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes, along with a copy of the transmittal letter to the CPM. The project owner shall submit a copy of the CBO's approval to the CPM in the next monthly compliance report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit plans, calculations and other supporting documentation to the CBO for design review and acceptance for all project structures and equipment identified in the CBO-approved master drawing and master specifications lists. The design plans and calculations shall include the lateral force procedures and details as well as vertical calculations.

Construction of any structure or component shall not begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed

concurrently with the structure plans, calculations, and specifications;

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation;
4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations, and specifications shall be signed and stamped by the responsible design engineer; and
5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS.

Verification: At least 60 days (or project owner and CBO approved alternative time frame) prior to the start of any increment of construction of any structure or component listed in the CBO approved master drawing and master specifications list, the project owner shall submit to the CBO the above final design plans, specifications and calculations, with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM, in the next monthly compliance report, a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and comply with the requirements set forth in applicable engineering LORS.

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2010 CBC.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the Conditions of Certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2010 CBC, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the monthly compliance report, when the CBO has approved the revised plans.

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in the 2010 CBC shall, at a minimum, be designed to comply with the requirements of that chapter.

Verification: At least 30 days (or project owner and CBO approved alternate time frame) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following monthly compliance report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the monthly compliance report following completion of any inspection.

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in the CBO-approved master drawing and master specifications list. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of that construction.

The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards, which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- NACE R.P. 0169-83;
- NACE R.P. 0187-87;
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code);
- Contra Costa County codes; and
- The City of Oakley codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency.

Verification: At least 30 days (or project owner and CBO approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in the CBO-approved master drawing and master specifications list, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification

papers and other documents required by applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of that installation.

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and
2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or project owner and CBO approved alternative time frame) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.

MECH-3 The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations, and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that construction. The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS.

Verification: At least 30 days (or project owner and CBO approved alternative time frame) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

ELEC-1 Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 Volts or higher (see a representative list, below) the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

A. Final plant design plans shall include:

1. one-line diagram for the 13.8-kV, 4.16-kV and 480 V systems;
2. system grounding drawings;
3. lightning protection system; and
4. hazard area classification plan.

B. Final plant calculations must establish:

1. short-circuit ratings of plant equipment;
2. ampacity of feeder cables;
3. voltage drop in feeder cables;
4. system grounding requirements;
5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8-kV, 4.16-kV and 480 V systems;
6. system grounding requirements; and
7. lighting energy calculations.

C. The following activities shall be reported to the CPM in the monthly compliance report:

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and
3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

Verification: At least 30 days (or project owner and CBO approved alternative time frame) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

B. POWER PLANT EFFICIENCY

The OGS Project will use substantial amounts of natural gas for its fuel. Pursuant to the California Environmental Quality Act (CEQA), we must determine whether the consumption of this non-renewable form of energy will result in substantial impacts upon energy resources. (Cal. Code Regs., tit. 14, § 15126.4(a) (1), Appendix F.)

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4[a][1]). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency, its effects on local and regional energy supplies and energy resources, its requirements for additional energy supply capacity, its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient, and unnecessary consumption of energy. (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix F.)

The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas and oil, constitutes an adverse environmental impact. An adverse impact can be considered significant if it results in:

- adverse effects on local and regional energy supplies and energy resources;
- a requirement for additional energy supply capacity;
- noncompliance with existing energy standards; or
- the wasteful, inefficient, and unnecessary consumption of fuel or energy.

No federal, state or local laws, ordinances, regulations, and standards (LORS) apply to the efficiency of this project.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Energy Requirements and Use Efficiency

The evidence on this topic is undisputed and examines the project's energy requirements and energy use efficiency; effects on local and regional energy supplies and resources; requirements for additional energy supply capacity; and compliance with applicable energy standards. (3/15/11 RT 67-77; Exs. 1, §§ 2.6,

55, 300, § 5.3.) In addition, the evidence addresses whether there are feasible alternatives which would reduce any wasteful, inefficient, or unnecessary energy consumption attributable to the project.

The project objectives include providing approximately 624 MW of rapid response combined cycle technology to satisfy the Applicant's purposes and objectives as identified in the **Project Description** section of this Decision, including providing operating flexibility. "Operating flexibility" refers to a facility's ability to start up, shut down, turn down, and provide load following and spinning reserve when needed. The plant will be capable of operating 24 hours per day, seven days per week but the Applicant expects OGS to be primarily operated on load-following or cycling service. (Exs. 1, pp. 2-33, 2-43; 300, p. 5.3-1 – 5.3-2.)

Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power. Under normal conditions, the project will burn natural gas at a rate of approximately 3,569 million British Thermal Units (Btu) per hour LHV during base load operation. Under expected project conditions, OGS will generate electricity at a full load efficiency of approximately 56 percent LHV. According to the evidence, this efficiency level compares favorably with the average fuel efficiency of a typical base load combined-cycle power plant.

As stated above, OGS will be a combined cycle power plant. OGS proposes to use two General Electric (GE) Frame 7FA combustion turbine generators with an evaporative inlet air cooling system, two triple-pressure heat recovery steam recovery (HRSGs), and one triple-pressure reheat condensing steam turbine generator arranged in a two-on-one combined cycled train.

Electricity will be generated by the turbines and a reheat steam turbine operating on heat energy recovered from the turbines' exhaust. By recovering this heat, which would otherwise be lost up the exhaust stacks, the efficiency this combined cycle power plant is increased as compared to either gas turbines or a steam turbine operating alone. Thus, according to the evidence, this configuration is well suited to the large, steady loads met by a base load plant that generates energy efficiently over long periods of time.

Furthermore, the project will use evaporative inlet air coolers, two triple-pressure HRSGs, and a power cycle cooling system, will further enhance OGS efficiency. For example, regarding the two-train combustion turbine/HRSG configuration,

during unit turndown one gas turbine can be shut down, leaving the other fully loaded. This allows the efficient operation of one gas turbine instead of the operation of two gas turbines operating at a less efficient 50 percent of load. (Exs. 1, p. 2-13- 2-15; 300, pp. 5.3-3 - 5.3-4.)

The project's incorporation of GE's rapid start technology will allow the combustion turbine to reach base load more quickly. As explained by Staff, this technology is designed to start quickly, and while in startup phase, to operate at an efficiency rating comparable to a typical simple cycle plant. Within minutes, the steam turbine generator would begin producing power. The plant would then operate at a typical combined cycle efficiency rating. (Ex. 300, p. 5.3-4.)

2. Alternative Equipment and Technology

The evidence indicates that the proposed turbines embody the most fuel-efficient electric generation technology available. Although the Siemens CCC6-5000F and Alstom Power KA24 are potentially viable alternatives, the evidence does not establish that either of these alternatives offers efficiency advantages over the GE Frame 7A turbine generators. Indeed, according to Staff, "any differences among these products in actual operating efficiency will be "insignificant"." (Ex. 300, p. 5.3-4.)

Modern gas turbines represent the most fuel-efficient electric generating technology available. There appear to be three categories of large combustion turbine models: conventional, advanced, and next generation. The evidence indicates that advanced turbines have advantages for the OGS Project in that (1) their higher firing temperatures offer higher efficiencies than conventional turbines and (2) they offer proven technology with numerous installations and extensive run times in commercial operations. Even so, two next generation turbines have been identified as possible alternatives to the advanced F-class turbine that OGS will use. They are the Siemens-Westinghouse 510G and more generally, the H-class next generation turbine. The former, which is a G-class turbine, would have to operate at less than optimum base load efficiency to meet the project's expected load capacity requirements. The H-class turbine has limited commercial availability and no established performance record. Thus, the record establishes that the project's use of the F-class turbine is both efficient and reasonable. (Ex. 300, p. 5.3-5.)

With respect to the efficiency of the selected gas turbine inlet air-cooling method, the evidence establishes that there are no alternatives to the chosen evaporative

cooling technology that could significantly reduce energy consumption. According to the evidence, commonly used inlet air-cooling techniques include the evaporative cooler (or fogger) and the chiller. Both techniques increase power output by cooling the gas turbine inlet but, according to Staff, the efficiency differences between the alternative technologies are relatively insignificant. Furthermore, given the climate at the project site (relatively high temperatures and low relative humidity) and the relative lack of clear superiority of one system over another, we find that the Applicant's choice of an evaporative gas turbine inlet air cooling system will have no significant adverse energy impacts. (Ex. 300, pp. 5.3-5 - 5.3-6.)

As shown by the evidence, the Applicant's proposed use of a dry-cooling technology (an air-cooled condenser) as the means for rejecting power cycle heat from the steam turbine, will allow for slightly less efficient performance than an evaporative cooling tower given the climate at the project site. However, because an air-cooled condenser consumes far less water than an evaporative cooling tower, the conservation of water makes the Applicant's selected technology an appropriate and reasonable environmental alternative. (Ex. 300, p. 5.3-6.)

Thus, the evidence establishes that the project's combined cycle configuration and the chosen generating equipment represent the most efficient feasible combination to satisfy the Applicant's stated project objectives. There is no evidence of any alternatives that could significantly reduce energy consumption or that are environmentally superior.

3. Impacts on Energy Supplies

The Applicant has described its sources of natural gas to operate the project. Natural gas will be delivered to OGS via a new 6- to 10-inch-diameter, 300-foot-long gas line that will be connected to Pacific Gas and Electric Company (PG&E) Line 303. A secondary line, a new 6- to 10-inch-diameter, 410-foot-long gas pipeline from PG&E Line 400 might be constructed to provide additional natural gas in order to meet any additional project requirements. The evidence establishes that PG&E's present energy supply capacity is sufficient to meet the demands of the OGS Project. Thus, it is unlikely that the OGS Project would require the development of additional energy supply delivery capacity. (Exs. 1, pp. 2-20, 2-41, § 4.0; 300, p. 5.3-3.)

Moreover, the evidence shows that only natural gas burning technologies are feasible for this project. Other technologies are either incapable of providing the OGS Project's ancillary services (e.g., solar), are unavailable in the area (e.g., wind, geothermal, biomass), or are too highly polluting (e.g., coal, oil). (Exs. 1, § 6.0; 300, p. 5.3-4, also see the **Alternatives** section of this Decision.)

4. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. [Cal. Code Regs., tit. 14, § 15065(a)(3).]

The evidence identifies two nearby power plants that could potentially impact cumulative energy consumption, when aggregated with this project: the Gateway Generating Station and the Marsh Landing Generating Station. However, the evidence establishes that the project will not affect the cumulative amount of gas consumed for power generation. In this regard, the evidence indicates that PG&E has confirmed its system's adequate capacity to supply the OGS Project and all other known projects that might use PG&E's gas supply, including the two identified power projects.

The evidence also shows that Staff independently assessed whether construction and operation of the project would create indirect impacts. Staff specifically considered whether the project would cause additional fuel consumption that would not have otherwise occurred without the OGS Project. According to the evidence, older, less efficient power plants consume more natural gas than new, more efficient plants such as OGS. Thus, the high efficiency of the proposed OGS should allow it to compete favorably, run at high capacity, and replace less efficient power generating plants. (Exs. 1, p. 2-41; 300, pp. 5.3-6 – 5.3-7.)

Based on the foregoing, we find that the OGS Project will not result in a significant adverse impact on cumulative energy consumption.

5. Noteworthy Project Benefits

The evidence shows that the OGS Project will benefit the State of California's electrical system by providing peaking power and ancillary services during periods of high demand. The project will do so in the most fuel efficient manner practicable, without creating adverse effects on energy supplies or resources. Furthermore, the project will contribute to regional electricity reserves. (Ex. 300, p. 5.3-7.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, we make the following findings and reach the following conclusions:

1. The OGS Project will provide approximately 624 MW of electricity in a combined cycle base load mode and use two GE Frame 7A gas turbines.
2. Under expected operating conditions, the project will generate electricity at a full load efficiency of approximately 56 percent LHV.
3. The project's rapid response combined cycle configuration and generating equipment (F-class gas turbines and associated cooling systems) represent the most efficient feasible combination for satisfying the Applicants stated project objectives.
4. The project will not require the development of new fuel supply resources.
5. The project will consume natural gas in as efficient a manner as practicable.
6. The evidence contains a comparative analysis of alternative fuel sources and generation technologies, none of which is superior at meeting project objectives in an efficient manner.
7. The project will increase power supply reliability in the California electricity market by both meeting the State's energy needs and contributing to regional electricity reserves.
8. No federal, state, or local laws, ordinances, regulations, or standards apply to the efficiency of this project.

CONCLUSION OF LAW

We therefore conclude that the OGS Project will not create adverse effects upon energy supplies or resources, require additional sources of energy supply, or consume energy in a wasteful or inefficient manner. No Conditions of Certification are required for this topic.

C. POWER PLANT RELIABILITY

We must determine whether the OGS Project will be designed, sited, and operated to ensure safe and reliable operation. [Pub. Res. Code, § 25520(b); Cal. Code Regs., tit. 20 § 1752(c) (2).] However, there are no laws, ordinances, regulations, or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. Therefore, we look to typical industry norms for reliability of power generation as a benchmark against which to evaluate this proposal. Where a power plant compares favorably to industry norms, it is not likely to degrade the overall reliability of the electric system it serves. The evidence on this topic was uncontested. (3/15/11 RT 67-77; Exs. 1, § 2.5; 46, 50; 55; 300, § 5.4.)

As a state control area operator, the California Independent System Operator (CAISO) bears responsibility for maintaining system reliability. How the CAISO and other control area operators ensure system reliability is an evolving process and new protocols are being developed and put in place to ensure sufficient reliability in the competitive market system. “Must run” power purchase agreements and “participating generator” agreements are two mechanisms that ensure an adequate supply of reliable power.

The CAISO also requires that power plants selling ancillary services, as well as those holding reliability must-run power purchase agreements, fulfill certain requirements, including:

- filing periodic reports on plant reliability.
- reporting all outages and their causes.
- scheduling all planned maintenance outages with the California ISO. (Ex. 300, p. 5.4-2.)

CAISO criteria are designed to maintain system-wide reliability. However, it is possible that, if numerous power plants operated at reliability levels sufficiently lower than historical levels, the assumptions used by CAISO to ensure system reliability would prove invalid. As a result, the Energy Commission must ensure that individual power plant owners continue to build and operate their projects to the traditional level of reliability reflected in the power generation industry.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The 624-MW OGS Project is designed to have operating flexibility; meaning, it has the ability to start up, shut down, and provide peaking power when needed. The Applicant expects the project to achieve an equivalent availability factor of 92 to 98 percent. The availability factor for a power plant is the percentage of time that it is available to generate power. Both planned and unplanned outages adversely affect a plant's availability and in turn, availability affects reliability. Thus, a reliable power plant is available when called upon to operate.

The evidence of record shows that a power plant's delivering acceptable reliability entails:

- adequate levels of equipment availability;
- plant maintainability with scheduled maintenance outages;
- fuel and water availability; and
- resistance to natural hazards. (Ex. 300, pp. 5.4-2 – 5.4-5.)

The Applicant predicts the OGS's annual capacity factor to be in the range of 60 to 80 percent. (Ex. 1, pp. 2-2, 2-33.)

Staff evaluated these estimates against typical industry norms to assess OGS's expected reliability. In other words, Staff evaluated whether OGS will be at least as reliable as other power plants in the utility system to which it will connect. When these factors compare favorably to industry norms, we can reasonably infer that the power plant would be at least as reliable as other power plants on the electric system and would therefore not degrade overall system reliability.

1. Equipment Availability

Equipment availability will be ensured for the OGS Project by its use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction, and operation of the plant and by providing adequate maintenance and repair of the equipment and systems. The project owner will use a QA/QC program typical in the power industry. Equipment will be purchased from qualified suppliers and the project owner will perform receipt inspections, test components, and administer independent testing contracts. To ensure these measures are taken, we have incorporated Conditions of Certification in the **Facility Design** section of this Decision that ensure that the project's structures,

systems, and equipment are designed and constructed in accordance with applicable engineering LORS. (Exs. 1, pp. 2-42 - 2-43; 300, p. 5.4-3.)

2. Plant Maintainability

Because OGS is intended to operate in base-load service for long periods of time (24 hours a day, seven days per week), it must be capable of being maintained while in operation. This can be achieved, for instance, by the project providing redundancy in the equipment most likely to require service or repair.

The evidence shows that the project incorporates an appropriate redundancy of function. It consists of two combined-cycle combustion turbine generators operating in parallel as independent equipment trains. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate (albeit at reduced output). In addition, all plant ancillary systems are designed with adequate redundancy to ensure continued operation if there is equipment failure.

The evidence further indicates that the project owner will base its maintenance program on recommendations from the various equipment manufacturers. This course of action will encompass both preventive and predictive maintenance techniques. Maintenance outages will be planned for periods of low electricity demand. The evidence establishes that the planned maintenance measures will ensure acceptable reliability. (Exs. 1, pp. 2-38 - 2-39, Table 2.5-1; 300, p. 5.4-3.)

3. Fuel and Water Availability

For any power plant, the long-term availability of water for cooling and process use and fuel is necessary to ensure reliability. The project will burn natural gas supplied by PG&E. This fuel will be supplied by one or two new natural gas pipelines. One line – 300-feet long - will connect to PG&E's Line #303. The other line – 410-feet long – will connect to PG&E Line 400. The evidence establishes that the lines offer access to adequate supplies of gas and pipeline capacity to meet the project's needs. (Ex. 1, p. 5.4-4.)

As discussed in the **Soil and Water** Resources section of this Decision, the project will use dry-cooled technology. However, it will still require water for its general process needs and cooling **when** necessary. OGS will use water from the Diablo Water District for potable, process, and possible plant cooling purposes and for fire suppression. The evidence establishes that the project's

water supply will be reliable. (*Id.*) The **Soil and Water Resources** section of this Decision more fully discusses the mechanics and reliability of the project water supply.

4. Natural Hazards

The evidence establishes that there are no natural forces (e.g., high winds, tsunamis, seiches) likely to present hazards to the project. However, as discussed in the **Geology and Paleontology** section of the Decision, there is potential for seismic shaking (earthquakes) and flooding to threaten OGS's reliable operation. As discussed therein, any such threats will be reduced to less than significant levels with implementation of the design and engineering Conditions of Certification in the **Facility Design** section of the Decision. (Exs. 50 [Reliability]; 300, pp. 5.4-5 – 5.4-5.)

5. Comparison to Industry Norms

The North American Electric Reliability Corporation (NERC) maintains statistics for power plant availability factors and other related reliability data. NERC published generating unit statistics for the years 2005 through 2009 for combined cycle units of all MW sizes, demonstrating an availability factor of 89.54 percent. The evidence shows that the gas turbines used by OGS have been commercially available to several years and are demonstrated to have an availability factor of 92 to 98 percent, which appears reasonable compared to the NERC statistics and further supports our finding that OGS will be reliable. (Ex. 300, p. 5.4-5.)

6. Noteworthy Public Benefits

The evidence indicates that the OGS Project will enhance power supply reliability in the California electricity market by meeting the state's growing energy demand, contributing to electricity reserves in the region, and providing operating flexibility (that is, the ability to start up, shut down, turn down, and provide load following and spinning reserve, when needed). (Ex. 300, p. 5.4-5.)

7. Public and Agency Comments

No comments were received on the Preliminary Staff Assessment on the topic of power plant reliability.

FINDINGS AND CONCLUSIONS

Based on the evidence, we make the following findings:

1. No federal, state, or local LORS apply to the reliability of OGS Project.

2. A project's reliability is acceptable if it does not degrade the reliability of the utility system to which it is connected.

3. The North American Electric Reliability Corporation (NERC) reports that for the years 2005 through 2009 combined cycle units of all MW sizes exhibited an availability factor of 89.54 percent.

4. The evidence indicates that an availability factor of 92 to 98 percent is achievable by OGS.

5. Implementation of Quality Assurance/Quality Control (QA/QC) programs during design, procurement, construction, and operation of the plant, as well as adequate maintenance and repair of the equipment and systems, will ensure the OGS Project is adequately reliable.

6. Appropriate Conditions of Certification included in the **Facility Design** portion of this Decision ensure implementation of the QA/QC programs and conformance with seismic design criteria.

7. The OGS Project's fuel and water supply will be reliable.

8. The project will meet or exceed industry norms for reliability, including reliability during seismic events, and will not degrade the overall electrical system.

9. The project, as a base load unit, is expected to operate 24 hours per day, seven days per week.

10. This project would enhance power supply reliability in the California electricity market by meeting the state's growing energy demand, contributing to electricity reserves in the region, and providing operating flexibility.

11. The use of two combustion turbine generators, configured as independent equipment trains, provides the project inherent reliability.

CONCLUSION OF LAW

We therefore conclude that the project will be constructed and operated in accordance with typical power industry norms for reliable electricity generation and will not degrade overall system reliability. No Conditions of Certification other than those included in the **Facility Design** portion of this Decision are required for this topic.

D. TRANSMISSION SYSTEM ENGINEERING

The Energy Commission's jurisdiction includes "…any electric power line carrying electric power from a thermal power plant…to a point of junction with an interconnected transmission system." (Pub. Res. Code, § 25107.) The Energy Commission assesses the engineering and planning design of new transmission facilities associated with a proposed project to ensure compliance with applicable law. The Commission also conducts an environmental review of the "whole of the action" related to the power plant proposal. This may include examining the environmental effects of facilities made necessary by the construction and operation of the proposed power plant but not licensed by the Energy Commission. (Cal. Code Regs., tit. 14 § 15378.)

Pacific Gas and Electric (PG&E) is responsible for ensuring electric system reliability in the PG&E system with the addition of the proposed generating plant. PG&E has provided its analysis and reports in the form of their Phase I and Phase II Interconnection Studies, and its approval for the facilities based upon changes required in the PG&E system to accommodate the addition of the proposed transmission modifications. (Ex. 300, p. 5.5-2.)

The California Independent System Operator (CAISO) is responsible for ensuring electric system reliability for all participating transmission owners and is also responsible for developing the standards necessary to achieve system reliability. The CAISO will review the studies of the PG&E system to ensure adequacy of the proposed transmission interconnection. The CAISO will also determine the reliability impacts of the proposed and potential transmission modifications on the PG&E transmission system in accordance with all applicable reliability criteria. According to the CAISO tariffs, the CAISO will determine the need for transmission additions or upgrades downstream from the interconnection point to insure reliability of the transmission grid. The CAISO will review and complete the Phase 2 Interconnection Study performed by PG&E and/or third party, provide their analysis, conclusions, and recommendations. The CAISO would execute a Large Generator Interconnection Agreement (LGIA) with the project owner. (*Id*.)

The laws, ordinances regulations and standards (LORS) applicable to the OGS Project's transmission system engineering are summarized below and detailed in **Appendix A** of this Decision:

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction;"
- California Public Utilities Commission (CPUC) General Order 128 (GO-128), "Rules for Construction of Underground Electric Supply and Communications Systems;"
- The National Electric Safety Code, 2007 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation;
- The Western Electric Coordinating Council (WECC) Regional System Performance Criteria is similar to the system performance limits as defined in NERC transmission planning standards;
- The North American Electric Reliability Corporation (NERC) Reliability Standards define the plans, policies & procedures, methodologies & system models, coordination & responsibilities, and performance criteria for reliable planning, control and operation of the North American Bulk Electric System (BES) over broad spectrum of system conditions and following a wide range of probable disturbances;
- California ISO Planning Standards also provide standards and guidelines to ensure the adequacy, security and reliability in the planning of the California ISO grid transmission facilities; and
- California ISO/FERC Electric Tariff provides rules, procedures and guidelines for construction of all transmission additions/upgrades (projects) within the California ISO controlled grid. (Ex. 300, pp. 5.5-2 – 5.5-4.)

The evidence on this topic was undisputed. (3/15/11 RT 67-77, 3/25/11 RT 69, Exs.1, § 3, Appendix 3, 2 [Responses 2, 3], 9, 10, 22, 28, 38, 43, 46, 50, 51, 55; 300, § 5.5, 302.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description

The OGS is a natural gas-fired combined-cycle power generating facility that will be located in Oakley, Contra Costa County, California. The OGS would consist of two combustion turbine-generators (CTG) and a steam turbine generator (STG). The OGS will have a nominal generating capacity of 624 MW. The OGS will interconnect to the PG&E Contra Costa Substation. (Ex. 300, p.5, 5-4.)

The 2.4-mile long single circuit generation tie-line would be built with 1272 kcmil ACSR bundled conductors and would be supported by both single-circuit steel pole structures and double-circuit steel pole structures. The generator tie-line

would be built using the existing Contra Costa – DuPont 60-kV line right-of-way. The existing Contra Costa – DuPont 60-kV line will be removed and demolished.

South of Main Street of the OGS generator tie-line would be supported by single-circuit steel poles. Generator tie-lines on North of Main Street would be supported by double-circuit steel poles. Double-circuit steel poles will support the OGS generator tie-line and the existing 60-kV line which taps the Contra Costa – Balfour 60-kV line at the intersection of Bridgehead Road and Main Street. Power would be distributed to the grid by existing transmission lines from the Contra Costa Substation. (Exs. 1, § 3.2, Figure 2.1-5; 22; 43; 300, pp. 5.5-4 – 5.5-5.)

The evidence establishes that the configuration of the **OGS switchyard**, the generator interconnection tie line and its termination at the PG&E Contra Costa substation would be in accord with industry standards and good utility practices. Conditions of Certification **TSE-1** through **TSE 7** ensure that the proposed facilities are designed, built and operated in accordance with good utility practices and applicable LORS.

In summary, **TSE-1** requires the project owner to provide the Energy Commission Compliance Project Manager (CPM) with a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. **TSE-2** and **TSE-5** collectively require the project owner to assign an electrical engineer and various other subject-matter engineers to the project and hold them responsible for design and review of TSE transmission facilities. Under **TSE-3**, if any discrepancy in design and/or construction is discovered in any engineering work that has undergone prior Chief Building Official (CBO) design review and approval, the project owner shall document the discrepancy and recommend corrective action for which CBO approval must be obtained. **TSE-4** applies to the power plant switchyard, outlet line and termination and prevents the project owner from beginning any construction until plans for that increment of construction have been approved by the CBO. Under **TSE-6**, the project owner must provide give specified notice to CAISO prior to synchronizing the facility with the California Transmission system. And, **TSE-7** makes the project owner responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, “High Voltage Electric Safety

Orders," applicable interconnection standards, NEC and related industry standards.

2. Interconnection Studies and Results

PG&E and CAISO are responsible for ensuring grid reliability. CAISO (in coordination with PG&E) conducted Phase I and Phase II Interconnection studies for OGS interconnection to the grid. These studies analyze the grid with and without the OGS Project under conditions specified in the planning standards and reliability criteria. The analysis considers the OGS Project for the first year of operation based on a forecast of loads, generation, and transmission for calendar year 2013. Generation and transmission forecasts are established by an interconnection queue of the projects in the cluster. The studies focus on thermal overloads, deliverability assessment, voltage deviations or reactive power deficiency, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads, or cascading outages), short circuit duties and operational studies.

The Phase I study included 12 projects comprising a net output of 4,707 MW from a project cluster identified as Group 1 (Greater Bay Area). The OGS Project was included in this cluster. The evidence indicates that the Phase I study did not provide an accurate forecast of impacts on the transmission grid. As result, Staff relied on the Phase II Interconnection Study Report completed in November 2010 and the revision 2.0 of the Appendix A, Phase II Interconnection Study Report dated December 2010, to determine the impact on grid reliability and identify transmission upgrades for reliable interconnection.

Thus, our evaluation of OGS interconnection is based on the Phase II group study, which modeled the OGS Project with a net output of 651 MW. The base case for the study was developed from PG&E's 2009 base case series and considered the 2013 summer peak load and 2013 summer off-peak load. The base case series includes all pre-Grater Bay Area Transition Cluster generation projects and the associated Network Upgrades and Special Protection System, as well as planned CAISO approved transmission upgrade projects scheduled to be in service by 2013. (Exs. 9; 38; 43; 300, p. 5.5-10.)

a. Power Flow Study Results and Mitigation Measures

The power flow studies were conducted with and without the proposed Greater Bay Area Transition Cluster Group Phase II projects connected to the PG&E grid at each project's proposed interconnection point. The evidence describes the study assumptions.

The studies identified the following pre-project overload criteria violations under 2013 Summer Peak and Off-Peak study conditions caused by existing system conditions or projects with higher positions in the PG&E's generator interconnection queue as summarized below. (Ex. 300, pp. 5.5-7 – 5.5-8.)

<u>Normal Overloads (N-0) Conditions</u>

- Contra Costa PP – Delta Pumps 230- kV line (Contra Costa – Windmaster section)
- Contra Costa PP – Delta Pumps 230-kV line (Windmaster – Delta Pumps section)
- Kelso – Tesla 230-kV line (Kelso – USWP Ralph section)
- Kelso – Tesla 230-kV line (USWP Ralph – Tesla section)
- Las Positas - Newark 230-kV line.

<u>Category B (N-1) Conditions</u>

- Birds Landing – Contra Costa 230-kV line
- Contra Costa PP – Contra Costa Sub 230-kV line
- Lone Tree – Cayetano 230-kV line (Lone Tree – USWP JW Ranch section)
- Lone Tree – Cayetano 230-kV line (USWP JW Ranch – Cayetano section)
- Kelso – Tesla 230-kV line (Kelso – USWP Ralph section)
- Kelso – Tesla 230-kV line (USWP Ralph – Tesla section)

<u>Category C (N-2) Conditions</u>

- Kelso – Tesla 230-kV line (Kelso – USWP Ralph section)
- Kelso – Tesla 230-kV line (USWP Ralph – Tesla section)
- Lone Tree – Cayetano 230-kV line (Lone Tree – USWP JW Ranch section)

- Lone Tree – Cayetano 230-kV line (USWP JW Ranch – Cayetano section)
- Lambie – Birds Landing 230-kV line
- Vaca Dixon – Lambie 230-kV line

The study identified two mitigation categories to address the overloads: (1) reliability network upgrades and (2) delivery network upgrades. Reliability network upgrades are required in order to meet system reliability standards for the interconnection of the projects in the studied cluster. Delivery network upgrades are required only when an interconnecting generator requests full delivery interconnection service. The OGS Project will be a full delivery generator.

The reliability network upgrades options for which the OGS will be primarily financially responsible include re-rating the Lone Tree – Cayetano 230-kV line from two feet/second wind speed to four feet/second wind speed. The network upgrades also require OGS to bear primary financial responsibility for installation of a special protection scheme/system (SPS) on the Contra Costa PP – Contra Costa Sub 230-kV line, Birds Landing – Contra Costa 230-kV line, Vaca – Lambie 230-kV line, and Lambie – Birds Landing 230-kV line. Installing SPS will allow the lines to drop the OGS generation to mitigate overloads.

Under the delivery network upgrades category of mitigation, the following overloaded lines must be reconductored to allow for the full delivery of generation:

- 18.3 mile-long Contra Costa PP – Delta Pumps 230-kV line (Contra Costa – Windmaster: 16.5 miles and Windmaster – Delta Pumps: 1.8 miles);
- 8 mile-long Kelso – Tesla 230-kV line (Kelso – USWP Ralph: 3.3 miles and USWP Ralph – Tesla: 4.7 miles);
- 21 mile-long Las Positas - Newark 230-kV line (Ex. 300, p. 5.5-9).

The California Public Utilities Commission (CPUC) must license the reconductoring of these PG&E lines. The CPUC licensing process, which must comply with CEQA, will identify environmental impacts and impose feasible mitigation where necessary. However, because reconductoring is a reasonably foreseeable impact that comprises “part of the whole” of the OGS Project, the Applicant and Staff conducted planning-level environmental analyses of reconductoring impacts. (Exs. 51; 302.) Their analyses are summarized below under “Environmental Impacts of Downstream Upgrades.”

b. Short Circuit Study

Short Circuit studies were performed to determine the degree to which the addition of the Greater Bay Area Transition Cluster Group Phase II projects increase fault duties at PG&E's substations, adjacent utility substations, and the other 70-kV, 115-kV, 230-kV and 500-kV busses within the study area. The fault duties were calculated with and without the Greater Bay Area Transition Cluster Group Phase II projects to identify any equipment overstress conditions.

The study shows that the OGS Project contributes more than the threshold value of 100 Amps to the circuit breaker 672 in the Pittsburg PP 230-kV Switching Station. This impact can be mitigated by replacing circuit breaker 672 with a higher rating circuit breaker. (Exs. 38; 43; 300, p. 5.5-10.)

c. Transient Stability Study

Transient stability studies were conducted using the 2013 summer peak full loop base cases to ensure that the transmission system remains in operating equilibrium, as well as operating in a coordinated fashion, through abnormal operating conditions after the Phase II Transition Cluster projects became operational.

The study results indicate that the OGS Project would not cause adverse impacts on the stable operation of the transmission system following the selected Category "B" and Category "C" outages. (Exs. 43, § 7; 300, p. 5.5-10.)

d. Reactive Power Deficiency Analysis

Reactive power deficiency analysis was performed to determine the system performance according to the NERC/WECC planning criteria. The reactive power deficiency analysis indicated that the addition of the Transition Cluster projects including the OGS would not contribute to any reactive power margin violations at PG&E buses following selected Category "B" and Category "C" contingencies (Exs. 43, § 6; 300, p. 5.5-10.)

3. Environmental Impacts of Downstream Upgrades

The transmission line segments to be reconductored are shown in **Figures 1 through 3B** at the end of this **Transmission System Engineering** section. The reconductoring project would involve replacing the conductors on one or more

transmission line segments with new conductors that would increase current-carrying capacity of the segment.

As discussed above, the reconductoring recommended by the Phase II study is a reasonably foreseeable project impact that comprises “part of the whole” of the OGS Project. [See, Cal Code Regs., tit. 20. §1702, subd. (u).] We note, however, that the Energy Commission’s direct jurisdiction extends only to the first point of interconnection with the electrical transmission system at the Contra Costa Substation. (Pub. Res. Code, § 25107; Cal. Code. Regs., tit 20, § 1702, subd. (n), Ex. 302, p. A-2.) As a result, the Applicant’s and Staff’s analyses of downstream potential serve to inform the Commission and the general public of the potential direct and indirect effects of reconductoring. These analyses provide planning-level project description of required reconductoring facilities and activities with an extensive discussion of potential environmental impacts. The analyses also describe the potential impacts and recommended mitigation to reduce impacts to less than significant levels. The Applicant and Staff considered each technical area that must be analyzed under CEQA. (Exs. 51; 302.)

Our discussion below provides an overview of identified potential impacts and suggested mitigation. The evidence more fully identifies recommended avoidance and impact minimization measures. Ultimately the CPUC will determine appropriate mitigation measures for impacts identified during the CPUC approval process.

a. Project Location and Description

The 18.3 mile–long Contra Costa PP to Delta Pumps transmission line consists of a single 230-kV circuit with three conductors mounted on the existing double-circuit lattice towers in an existing right-of-way (ROW). The line begins at the Contra Costa PP switching station. The Contra Costa PP switching station at the northern end of the reconductoring project area is located in the northeastern corner of the City of Antioch, south of the San Joaquin River and approximately one mile west of the City of Oakley. The Delta Pumps Substation is at the southern end of the project area and is located approximately five miles south of the town of Byron and two miles southwest of Clifton Court Forebay. These sections of the reconductoring project are located within eastern Contra Costa County. (Exs. 51; 302.)

The Las Positas to Newark 230-kV line extends from the Las Positas Substation to the Newark Substation in Newark. The Las Positas Substation is located in the City of Livermore just south of I-580. This reconductoring project runs south from the substation for approximately three miles then turns in a southwest direction to travel the remaining 18 miles in a southwest direction to terminate at the Newark Substation. The Newark substation is located approximately 3.5 miles from downtown Newark and one mile southwest of Interstate-880. This section of the reconductoring project is in Alameda County within an existing right of way. (Ex. 302, pp. A-3 – A-4.)

The Kelso-Tesla transmission line consists of a single 230-kV circuit with three conductors mounted on the existing lattice towers in an existing right-of-way ROW). Both the Applicant and Staff deferred to Staff's reconductoring analysis of the Kelso-Tesla transmission line in the Mariposa Energy Project (MEP) Supplemental Staff Assessment Transmission System Engineering Appendix A. Staff incorporated the analysis by reference into the OGS Project analysis. (Exs. 51, p. 1-1; 301, p. A-2.) Our discussion refers to MEP Appendix A as Exhibit MEP 301.

Segment A of the Kelso-Tesla line begins at the Kelso Substation, then travels west for approximately 200 feet to Bruns Road, continuing south for approximately 4,000 feet to Christensen Road, and then continues west along Christensen Road for approximately 6,000 feet. The line continues approximately 8,000 feet south to the USWP RLF Substation. Segment A then meets with Segment B, which continues cross country for 4.7 miles southeast to the Tesla Substation, crossing Interstate 580 (I-580). This project includes a total of 39 existing towers. (Ex. MEP 301, p. A-3.)

b. Analysis of Reconductoring Impacts

In general, reconductoring is accomplished by disconnecting the old conductor and using it like a rope to pull the new conductor through the temporary pulleys, called "travelers" or "sheave blocks," that are mounted on each tower, until it reaches the other end. The evidence details the reconductoring process and generally explains that reasonable measures would be taken to reduce impacts to the environment. (Exs. 302, pp. A-4 – A-6; MEP 301, pp. A-3 - A-4.)

i. Air Quality

Reconductoring activities for the three lines would generate temporary (short-term) emissions similar to the construction-phase impacts discussed in **Air**

Quality section of this Decision. Construction equipment and vehicle exhaust emissions would include carbon monoxide (CO), ozone precursors including nitrogen oxides (NOx) and volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), fine particulate matter (PM2.5), and inhalable particles (PM10), including diesel particulate matter.

Impacts from exhaust emissions from heavy-duty diesel-fueled construction equipment can be reduced by using the newest available engines and other practices such as idle time restrictions and appropriate engine maintenance, similar to those adopted for the OGS construction phase. With the implementation of the recommended minimization measures similar to those adopted in the **Air Quality** section of this Decision for the OGS Project's construction phase, the reconductoring emissions would likely comply with applicable LORS, and the emissions would not likely cause or contribute to a violation of the ambient air quality standards or otherwise result in a potential for a significant air quality impact. Therefore, the reconductoring activities would not be expected to result in air quality impacts greater than those discussed in the Air Quality section of this Decision. (Exs. 302, pp. A-6 –A-8; MEP 301, pp. A-5 – A-6.)

ii. Biological Resources

Regarding all of the lines, the evidence indicates that several vegetation communities and wildlife currently exist in the reconductoring areas. The vegetation communities include California annual grassland, ruderal vegetation, non-native woodland, agricultural and pasture land, chapparal, and freshwater marshes. There is moderate to high potential for large-flowered fiddleneck, palmate-bracted bird's-beak, Contra Costa goldfields, caper-fruited tropidocarpum, and potentially other special-status plants to occur in the project area. Rare plant surveys must be performed during the appropriate blooming period to identify the distribution of potentially affected special-status plants.

The Contra Costa PP to Delta Pumps 230-kV and Las Positas to Newark 230-kV lines are within California red-legged frog critical habitat and there is potential for several special-status wildlife species to occur in the project corridors for all of the lines, including vernal pool branchiopods, California tiger salamander, California red-legged frog, tricolored blackbird, golden eagle, western burrowing owl, Swainson's hawk, and San Joaquin kit fox. In addition, breeding birds protected under the Migratory Bird Treaty Act are likely to be present within the project area. Focused biological surveys have not yet been conducted but subsequent, expected environmental review and consultation under the federal and California Endangered Species acts will ensure adequate protocol-level or

focused surveys for burrowing owl, vernal pool branchiopods and Swainson's hawk as well as the performance of other surveys relating to wetland delineation.

Potential impacts to special-status wildlife include direct mortality from encounters with construction equipment, burrow/nest destruction during equipment staging, entombing adults, eggs, or young, and disruption or harassment. In addition, short and long-term habitat loss, modification, and fragmentation, as well as the potential spread of noxious weeds could decrease local and regional wildlife habitat values. Consultation with resource agencies (USFWS and CDFG) would be required to identify appropriate impact avoidance, minimization, and mitigation measures and ensure compliance with the federal and California Endangered Species acts. (Exs. 302, pp. A-8 – A-18, MEP 301, pp. A-6 - A-18.)

iii. Cultural Resources

The literature research conducted for the Contra Costa PP to Delta Pumps 230-kV and Las Positas to Newark 230-kV lines revealed eleven prehistoric or historic-period cultural resources within the proposed reconductoring project area. One of these resources, the Contra Costa Canal (P-07-0002695), has previously been determined eligible for listing on the NRHP. An additional 65 resources are located within a one-half mile of the buffer area.

The literature search for the Kelso-Tesla line identified one previously recorded cultural resource, the historic Pittsburg-Tesla Transmission Line (P-01-010947/P-07-002956), within the project corridor. Three other cultural resources were identified within the one-quarter mile project buffer zone, but outside of the proposed reconductoring project area. The cultural resources include a historic ranch complex with associated ranch debris (P-01-000163); the historic Vaca Dixon-Tesla and Table Mountain-Tesla transmission lines (P-01-010499); and the historic Midway Road segment (P-01-010614). No new historic or prehistoric cultural resources were identified as a result of the pedestrian field survey. One previously identified resource, the Pittsburg-Tesla Transmission Line (P-01-010947/P-07-002956), was observed during the survey. This resource was previously recorded and evaluated in 2008 and was recommended not eligible for either the National Register of Historic Places or the California Register of Historical Resources.

There are no known sacred Native American lands in the vicinity of the reconductoring areas.

Reconductoring activities are not expected to result in impacts to the canal. And, because the reconductoring activities are not expected to involve anticipate tower replacements or other excavation, the activities are not likely to have a significant and unavoidable impact on buried cultural resources. The project could encounter surface archaeological resources, built-environment resources, or as-yet-unknown buried archaeological resources. With implementation of mitigation measures similar to those adopted in the **Cultural Resources** section of this Decision, any corresponding impacts would be reduced to less than significant levels and likely comply with LORS. (Exs. 302, pp. A-20 – A-21, MEP 301, pp. A-18 – A-21.)

iv. Geology and Paleontology

The evidence shows that potential for strong ground shaking from an earthquake is the most significant geologic hazard regarding all of the lines is the. The Las Positas to Newark 230-kV line project area has previously experienced seismic activity with strong ground motion during past earthquakes, and it is likely that strong earthquakes causing seismic shaking will occur in the future.

The potential impacts to geologic and paleontological resources would be limited to temporary construction sites. These sites would not require grading or other disturbance of surface soils, other than construction vehicle disturbance. Should new or replacement tower foundations be required as part of reconductoring, then compliance with the LORS and conditions similar to those adopted in the **Geology and Paleontology** section of the Decision would reduce the potential impacts to a less than significant levels. (Exs. 302, pp. A-22 – A-24; MEP 301, pp. A-21 - A-23.)

v. Land Use

The proposed reconductoring would replace transmission conductors within existing transmission line ROWs. This transmission system upgrade would not involve changing existing or planned land uses in the affected local jurisdictions. Any impacts to land use would be isolated and short term while construction crews reconductor the existing transmission lines. Because the stockpile areas would be temporary and would not displace any existing use, the impact would not be significant.

Construction activities would also require access to the existing transmission line ROWs by construction vehicles and equipment. These activities are not

expected to disturb existing surrounding land uses but if damage occurs as a result of construction vehicles or equipment, the PG&E would be responsible for repairs or replacement.

The evidence further indicates that the proposed reconductoring project would not cause a change in existing land uses. Also, because the reconductoring would be entirely within existing and established high voltage transmission line rights of way the act of reconductoring the transmission line (i.e., placing new wires on existing structures) would not disrupt or divide the physical arrangement of an established community, and is expected to be consistent with applicable land use LORS. (Ex. 302, pp. A-25-A-26; Ex. MEP 301, pp. A-23 – A-25.)

vi. Noise and Vibration

The transmission line right-of-way is in a rural agricultural with few residences and no sensitive receptors. Noise levels above existing ambient levels during reconductoring may be noticeable beyond areas immediately adjacent to the rights-of-way; however, they would be temporary and no additional mitigation measures are proposed. The reconductored transmission line routes would not result in potential impacts greater than those analyzed for the OGS Project itself and would be consistent with applicable LORS. Therefore, any potential noise and vibration impacts would be less than significant. (Exs. 302, pp. A-26 – A-27, MEP 301, pp. A-25 -A-26.)

vii. Public Health and Socioeconomics

The reconductoring activities are not expected to significantly increase the toxic air contaminant emissions estimates previously analyzed in this Decision. Therefore, the downstream reconductoring is not expected to result in impacts greater than those discussed in the **Public Health** and **Socioeconomics** sections of the Decision. The evidence also indicates that the reconductoring project will comply with applicable LORS. (Exs. 302, p. A-27, MEP 301, p. A-26.)

viii. Soil and Water Resources

Vegetation clearing and trimming would be required at the pulling and tensioning sites. The main impact to soils would be related to soil disturbance and compaction by construction vehicles and equipment at the pull and tension sites. Soil disturbance and compaction could result in a short-term increase in wind and water erosion until work areas are stabilized. Soil compaction could also impact the reestablishment of vegetation along the route. However, disturbed areas along the route would be allowed to revegetate following construction activities.

During construction, implementation of erosion and dust control best management practices (BMPs) as outlined in a Stormwater Pollution Prevention Plan (SWPPP) would limit impacts to soil and water resources associated with erosion. Standard BMPS including the use of filter fences or straw bales to trap eroded sediments, would prevent release offsite. Special consideration would be required for any work adjacent to existing ephemeral creeks or drainage channels. Dust control through watering would limit wind erosion impacts. Over-compacted soils could be reconditioned through ripping or tilling, and disturbed soils could be revegetated through hydroseeding.

Overall, the construction impacts to soils along the project corridor are not expected to be significant. With implementation of the appropriate BMPs, potential impacts to soil and water would be less than significant. The project is not expected to result in significant impacts, and would comply with the applicable LORS. (Ex. 302, pp. A-27 – A-28, MEP 301, pp. A-26 - A-27.)

ix. Traffic and Transportation

The existing Contra Costa PP to Delta Pumps 230-kV transmission line corridor begins at the existing Contra Costa PP switching station in Antioch, California, and passes through industrial and residential areas before heading south along the Highway 4 Bypass toward Brentwood. It runs through rolling hills and primarily traverses grazing land, agricultural lands, and wind farms until it reaches the Delta Pumps Substation.

The Las Positas to Newark 230-kV line runs south from the Las Positas Substation, which is located south of I-580 northeast of Livermore, California. The line then travels through residential areas and turns to run in a generally southwesterly direction through agricultural areas near the intersection of Tesla and Mines roads. It then crosses the Coast Range and begins to run in a southwesterly direction south of I-680 near Sunol. It continues roughly parallel to and south of I-680 and eventually enters the southern San Francisco Bay Area, crosses I-680 and I-880, and ends at the Newark Substation in Newark, California.

Reconductoring could cause potential traffic impacts where the lines cross over roadways. During reconductoring, there would be a small chance of a conductor breaking and falling across these roads, which could create hazards and block traffic. Furthermore, reconducturing activities could require brief temporary closures of travel lanes or roadways as well as encroachment. To mitigate

potential impacts, PG&E would likely implement a traffic control plan prepared in accordance with the California Department of Transportation Manual on Uniform Traffic Control Devices and the Work Area Traffic Control Handbook. Implementation of the traffic control plan for the affected area for the short duration of construction in that area would likely be adequate to minimize the traffic impacts to less than significant levels.

The Kelso-Tesla transmission line segments to be reconductored are located in northeastern Alameda County, mostly in undeveloped areas comprised of grazing land, agricultural land, and wind farms. The affected transmission line segments stretch between the PG&E Kelso Substation less than a mile north of the proposed OGS site to the Tesla Substation less than 2 miles south of the junction of I-205 and I-580. The work would involve a maximum of 20 workers, who would have an insignificant effect on traffic and would not cause a significant loss of service (LOS) on existing roads. However, if reconductoring occurs at the same time as construction on the OGS itself, work-related trips should occur in off-peak hours to avoid commute impacts. (Exs. 302, pp. A-29 – A-31; MEP 301, p. A-28.)

With implementation of mitigation measures similar to the Conditions of Certification **TRANS-1** and **TRANS-3** in the **Traffic and Transportation** section of this Decision, any potential impacts to traffic and transportation that would be less than significant.

x. Transmission Line Safety and Nuisance

Because the reconductored lines would remain within the rights-of-way (ROW) for the existing PG&E conductors to be replaced, the potential safety and nuisance impacts in the operational phase would occur within the existing rights of way. Line voltage would remain the same and consequently the voltage-dependent noise, corona and other field impacts would remain at existing levels when the reconductored lines are operating. Because these electric field impacts would be as expected for PG&E lines of similar design, the reconductoring would not pose significant noise or other electric field-related problems.

In addition, the magnetic filed is the only field component that would increase from the power additions from the proposed OGS and other area sources. The evidence explains that the strength of such magnetic fields is inversely proportional to the distance from the conductors. Given that the transmission line upgrade route is sited in proximity to residential areas according to CPUC

requirements, long-term residential field exposures would not be a significant concern. The magnetic field strengths of most significance in this regard would be as encountered at the edge of the existing rights-of-way. (Ex. 302, pp. A-30 – A-32; MEP 301, p.A-29.)

xi. Transmission System Engineering

Conformance with applicable construction standards, safety and reliability LORS is expected and such conformance would mitigate any safety or reliability implications of reconductoring the transmission line. (Ex. 302, pp. A-32- A-33; MEP 301, pp. A-29 - A-30.)

xii. Visual Resources

The lines would be similar in appearance with the existing transmission line, and adjacent transmission lines. No changes to the existing transmission towers are anticipated. Therefore the new conductors would not degrade the visual quality of the viewed landscape. Once construction is complete, this change to the transmission line would be undetectable to most viewers of the line, including motorists and residents living near the area, thus the project would not have any significant impacts on visual resources. The project would comply with applicable LORS. (Exs. 302, pp. A-34- A-35, MEP 301, pp. A-30 – A-31.)

xiii. Waste Management and Hazardous Materials

The downstream reconductoring would not result in hazardous material use beyond activities documented in the **Waste Management** and **Hazardous Management** sections of this Decision. Construction of the downstream reconductoring would not result in a significant increase in waste. Therefore, any potential hazardous materials management impacts and waste management would be less than significant. The reconductoring would comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during both project construction and operation. In addition, the sites are expected to should be managed to prevent contaminants from posing a significant risk to humans or the environment. These steps will avoid impacts to workers and the environment. (Exs. 302, pp. A-35 – A-36; MEP 301, pp. A-31 - A-36.)

xiv. Worker Safety and Fire Protection

Implementation of worker safety plans and protocols would be the same for the downstream reconductoring as those described in the **Worker Safety and Fire**

Protection section of this Decision. If the recommended mitigation measures are implemented, the reconductoring activities would not result in potential impacts greater than those analyzed in this Decision and would comply with applicable LORS if recommended mitigation measures were implemented. Therefore, any potential worker safety and fire protection impacts would be less than significant. (Exs. 302, p. A-36; MEP 301, pp. A-32 – A-33.)

4. Cumulative Impacts

Potential cumulative impacts on the transmission network are identified through the CAISO and utility generator interconnection process. For this reason we do not expect the OGS Project to create any cumulative adverse impacts in the network. Where a significant number of proposed generation projects could affect a particular portion of the transmission grid, the interconnecting utility or the CAISO can study the cluster of projects in order to identify the most efficient means to interconnect all the proposed projects. (Ex. 300, p. 5.5-10.)

5. Compliance with LORS

Evidence establishes that the OGS Project, including the proposed switchyard, and interconnection facilities including the OGS 230 kV switchyard, a single 230 kV overhead generator tie-lines, and termination to the proposed PG&E Contra Costa Substation are adequate and in accordance with industry standards and good utility practices, and are acceptable to staff according to engineering LORS identified above and presented in **Appendix A** to this Decision. (Ex. 300, pp. 5.5-10.) Compliance with Conditions of Certification **TSE-1** through **TSE-7** will help ensure that construction and operation of the transmission facilities for the proposed OGS would comply with applicable LORS.

Furthermore, as discussed above, the Phase II Interconnection Study indicates that OGS interconnection would comply with all NERC/WECC planning standards and California ISO reliability criteria as long as the identified Reliability Network Upgrades are implemented.

6. Agency and Public Comments

Staff received comments from the California Department of Water Resource – State Water Project (CDWR) regarding reconductoring of the existing PG&E Contra Costa PP – Delta Pumps 230-kV line. CDWR is concerned that the reconductoring could impact the operation of its Banks Pumping Plant and

proposed a condition of certification that would provide uninterrupted electric service for the CDWR pumping plant during reconductoring. Staff responded that (1) the reconductoring of existing transmission lines owned by PG&E would be licensed by the California Public Utilities Commission and any licensing conditions or mitigation measures placed on reconductoring would be done by the CPUC, and (2) CDWR's proposed condition of certification should, be considered in the CPUC's licensing process. (Ex. 300, p. 5.5-11.)

During the March 25, 2011 continued evidentiary hearing, a representative of CDWR stated that CDWR is generally supportive of the Staff's Final Staff Assessment analysis but indicated the CDWR would like to see more substantive conditions of certification regarding PG&E's proposed plan for downstream reconductoring. Applicant's legal counsel offered a responsive comment during the hearing, explaining that coordination between PG&E and CDWR to implement the proposed reconductoring will occur only if the Energy Commission approves the the OGS Project. (3/25/11 RT 93 - 97.)

As we discussed above in this section under "Environmental Impacts of Downstream Upgrades," downstream reconductoring will be undertaken by PG&E and is subject to the CPUC licensing and environmental review process. These activities are not within the Energy Commission's jurisdiction. We nonetheless evaluated the potential impacts of reconductoring and find that the Applicant's and Staff's information-level analyses establish that the reconductoring can be carried out in a manner consistent with applicable LORS and that impacts would likely be mitigated to less than significant levels.

FINDINGS OF FACT

Based on the evidence, we make the following findings and conclusions:

1. The OGS Project will consist of two natural gas-fired combustion turbine generator (CTG) units operating in combined cycle mode with a total 624 MW nominal output.

2. The 2.4-mile long single circuit generation tie-line would be built with 1272 kcmil ACSR bundled conductors and would be supported by both single-circuit steel pole structures and double-circuit steel pole structures. The generator tie-line would be built using the existing Contra Costa – DuPont 60-kV line right-of-way.

3. The evidence establishes that the configuration of the OGS switchyard, the generator interconnection tie line and its termination at the PG&E

Contra Costa substation would be in accord with industry standards and good utility practices. Conditions of Certification **TSE-1** through **TSE 7** ensure that the proposed facilities are designed, built and operated in accordance with good utility practices and applicable LORS.

4. Power would be distributed to the grid via existing transmission lines from the Contra Costa Substation.

5. The interconnection of the OGS Project will cause new transmission line overloads under normal conditions on five identified 230-kV transmission lines; under Category B (N-1) conditions on six identified 230-kV transmission lines, and, under Category C (N-2) conditions on six identified 230-kV transmission lines. The Phase II Interconnection study recommends adequate mitigation for these impacts.

6. The California Independent System Operator concludes in the Phase II Group Study assigns the OGS Project a proportionate portion of the cost responsibility for reliability and delivery network upgrades to mitigate the overloads.

7. The mitigation options for which the OGS is responsible include re-rating of the Lone Tree-Cayetano 230-kV line, replacing the circuit breaker at Pittsburg PP Switching Station, and reconductoring the following lines:

   - 18. 3 mile-long Contra Costa PP – Delta Pumps 230-kV transmission line reconductoring;
   - 8 mile-long Kelso – Tesla 230-kV line transmission line reconductoring;
   - 21 mile-long Las Positas - Newark 230-kV transmission line reconductoring

8. The reconductoring of the three identified lines is a reasonably foreseeable consequence of the interconnection of the OGS Project. Therefore, a general environmental analysis of the reconductoring, designed to meet the California Environmental Quality Act (CEQA) requirements, was performed by the Applicant and is included in the record as Exhibit 51. A similar analysis performed by Energy Commission Staff is found as Exhibit 302.

9. The evidence establishes that project-related downstream reconductorings can be carried out in a manner to meet all applicable LORS.

10. Downstream reconductoring will be undertaken by PG&E and is subject to the CPUC licensing and environmental review process.

CONCLUSIONS OF LAW

1. We therefore conclude that with the implementation of the various mitigation measures specified in this Decision, the proposed transmission interconnection for the project will not contribute to significant direct, indirect, or cumulative impacts.

2. The Conditions of Certification below ensure that the transmission-related aspects of the project will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the record.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Verification: Prior to the start of construction of the transmission facilities, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in **Table 1: Major Equipment List** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Equipment List
Breakers
Step-up transformer
Switchyard
Busses
Surge arrestors
Disconnects
Take-off facilities
Electrical control building
Switchyard control building
Transmission pole/tower
Grounding system

TSE-2 Before the start of construction of the transmission facilities, the project owner shall assign to the project an electrical engineer and at least one of each of the following:

a) a civil engineer;

b) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering;

c) a design engineer who is either a structural engineer or a civil engineer and fully competent and proficient in the design of power plant structures and equipment supports; or

d) a mechanical engineer (Business and Professions Code Sections 6704 et seq. require state registration to practice as either a civil engineer or a structural engineer in California).

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers as long as each engineer is responsible for a particular segment of the project, e.g., proposed earthwork, civil structures, power plant structures, or equipment support. No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical, or civil and design engineer, assigned as required by Facility Design Condition **GEN-5**, may be responsible for design and review of the TSE facilities.

The project owner shall submit to the CBO, for review and approval, the names, qualifications, and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earth work and require changes; if site conditions are unsafe or do not conform with the predicted conditions used as the basis for design of earth work or foundations.

The electrical engineer shall:

1. be responsible for the electrical design of the power plant switchyard, outlet, and termination facilities; and

2. sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: Prior to the start of rough grading of the transmission facilities, the project owner shall submit to the CBO for review and approval, the names,

qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

TSE-3 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action (2001 California Building Code, Chapter 1, section 108.4, approval required; Chapter 17, section 1701.3, *Duties and Responsibilities of the Special Inspector;* Appendix Chapter 33, section 3317.7, *Notification of Noncompliance*). The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and refer to this condition of certification.

Verification: The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for the disapproval, along with the revised corrective action required to obtain the CBO's approval.

TSE-4 For the power plant switchyard, outlet line and termination, the project owner shall not begin any construction until plans for that increment of construction have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the monthly compliance report:

A. receipt or delay of major electrical equipment;

B. testing or energization of major electrical equipment; and

C. the number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: Prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, and outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer verifying compliance with all applicable LORS, and send the CPM a copy of the transmittal letter in the next monthly compliance report.

TSE-5 The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to all applicable LORS, and the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations, as determined by the CBO. Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

a) The power plant outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, California ISO standards, National Electric Code (NEC) and related industry standards.

b) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.

d) The project conductors shall be sized to accommodate the full output of the project.

e) Termination facilities shall comply with applicable PG&E interconnection standards.

f) The project owner shall provide to the CPM:

   i) The Special Protection System (SPS) sequencing and timing if applicable,

   ii) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable,

   iii) A copy of the executed LGIA signed by the California ISO and the project owner and approved by the Federal Energy Regulatory Commission.

Verification: Prior to the start of construction or start of modification of transmission facilities, the project owner shall submit to the CBO for approval:

a) Design drawings, specifications, and calculations conforming with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations,

anchor bolts, conductors, grounding systems, and major switchyard equipment;

b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[1] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, California ISO standards, National Electric Code (NEC), and related industry standards;

c) Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in charge, a route map, and an engineering description of the equipment and configurations covered by requirements **TSE-5** a) through f);

d) The Special Protection System (SPS) sequencing and timing if applicable shall be provided concurrently to the CPM;

e) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable;

f) A copy of the executed LGIA signed by the California ISO and the project owner and approved by the Federal Energy Regulatory Commission.

Prior to the start of construction of or modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

TSE-6 The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and

[1] Worst-case conditions for the foundations would include for instance, a dead-end or angle pole.

2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the California ISO Outage Coordination Department.

Verification: The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-7 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

A. "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards.

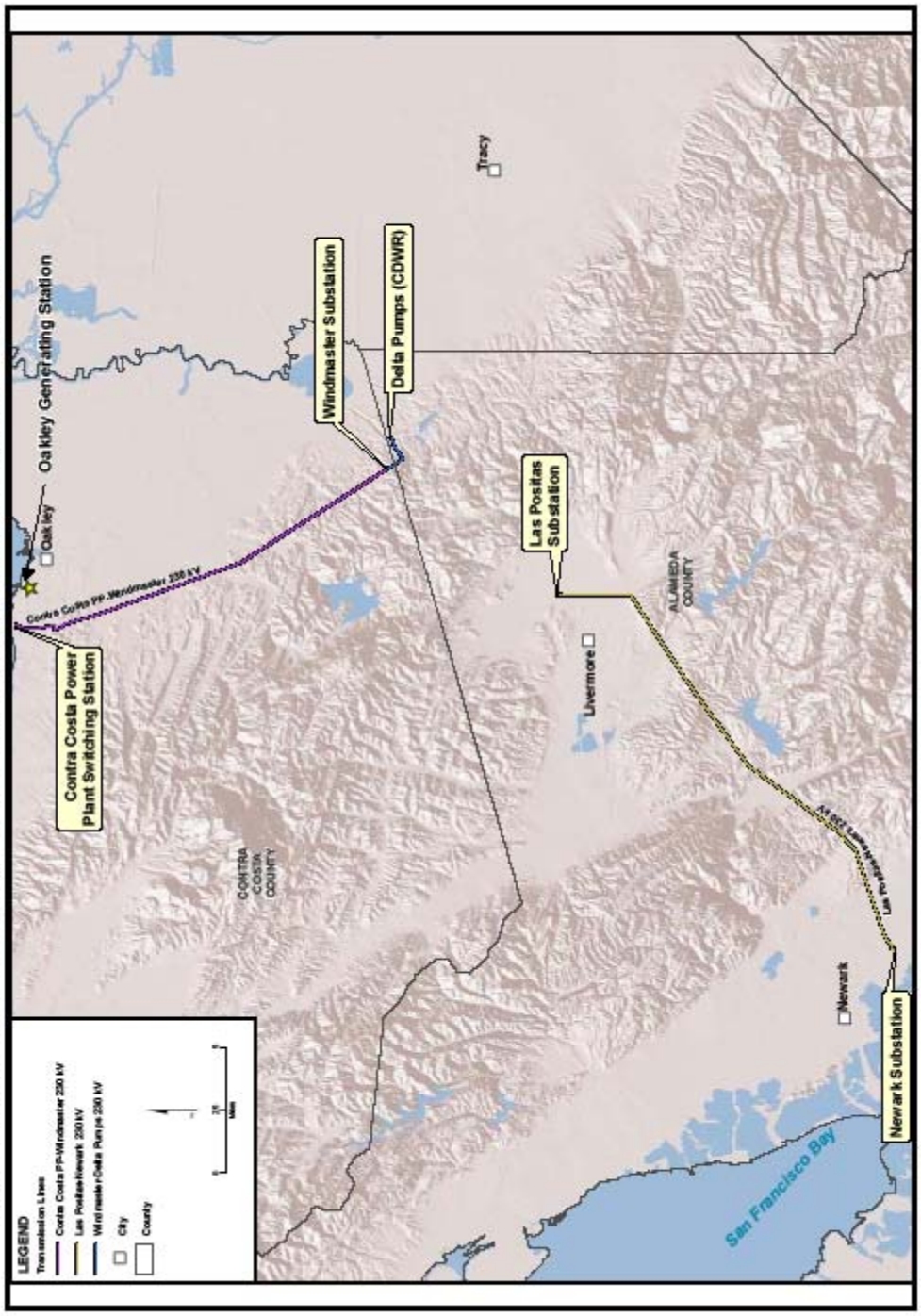
B. An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan".

A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

FIGURE 1

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Vicinity - Contra Costa PP to Delta Pumps & Las Positas to Newark 230kV Reconductoring Projects



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

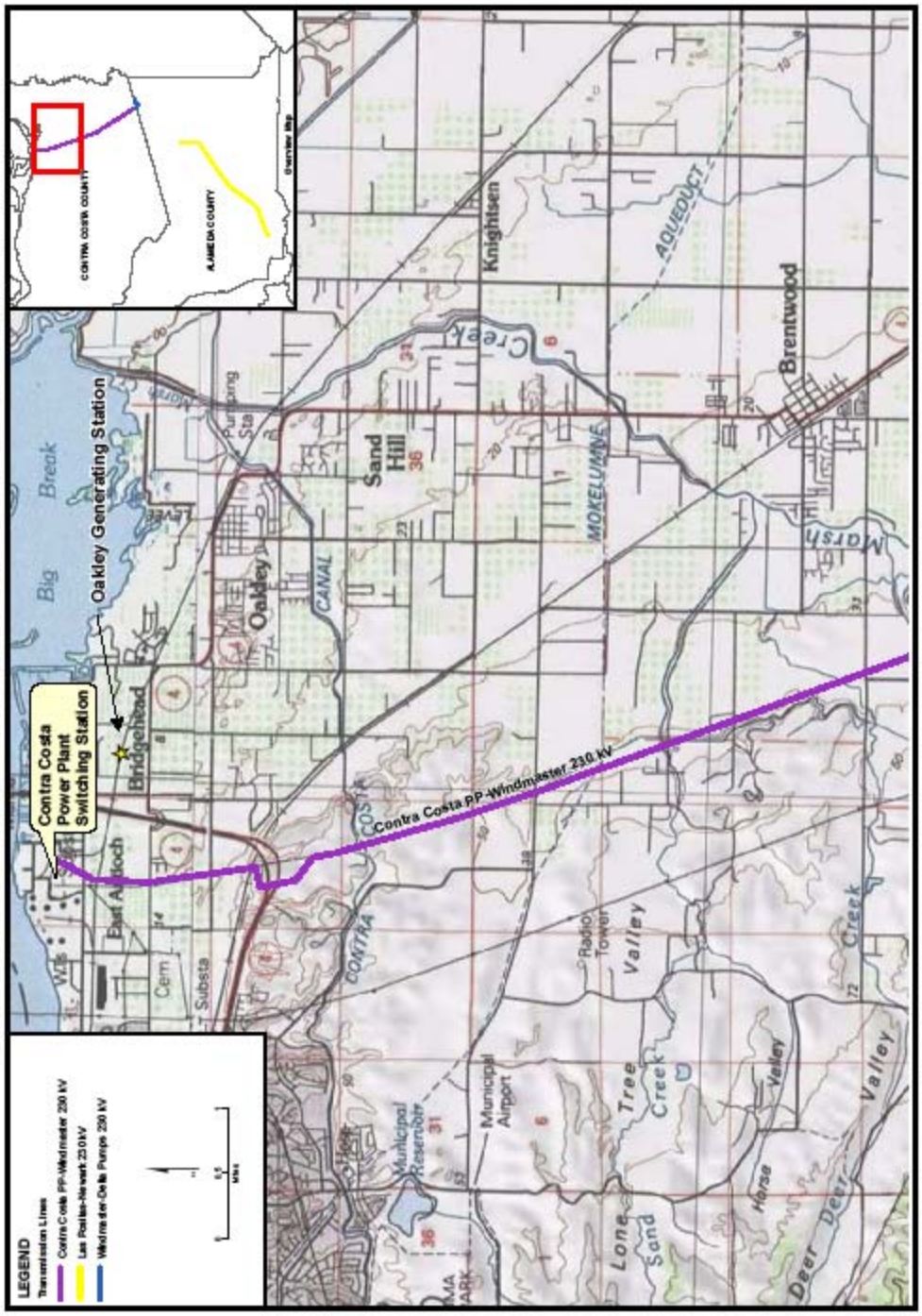
SOURCE: Data Response to Data Request 74

TRANSMISSION SYSTEM ENGINEERING

FIGURE 2A

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Contra Costa PP to Delta Pumps Transmission Line



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

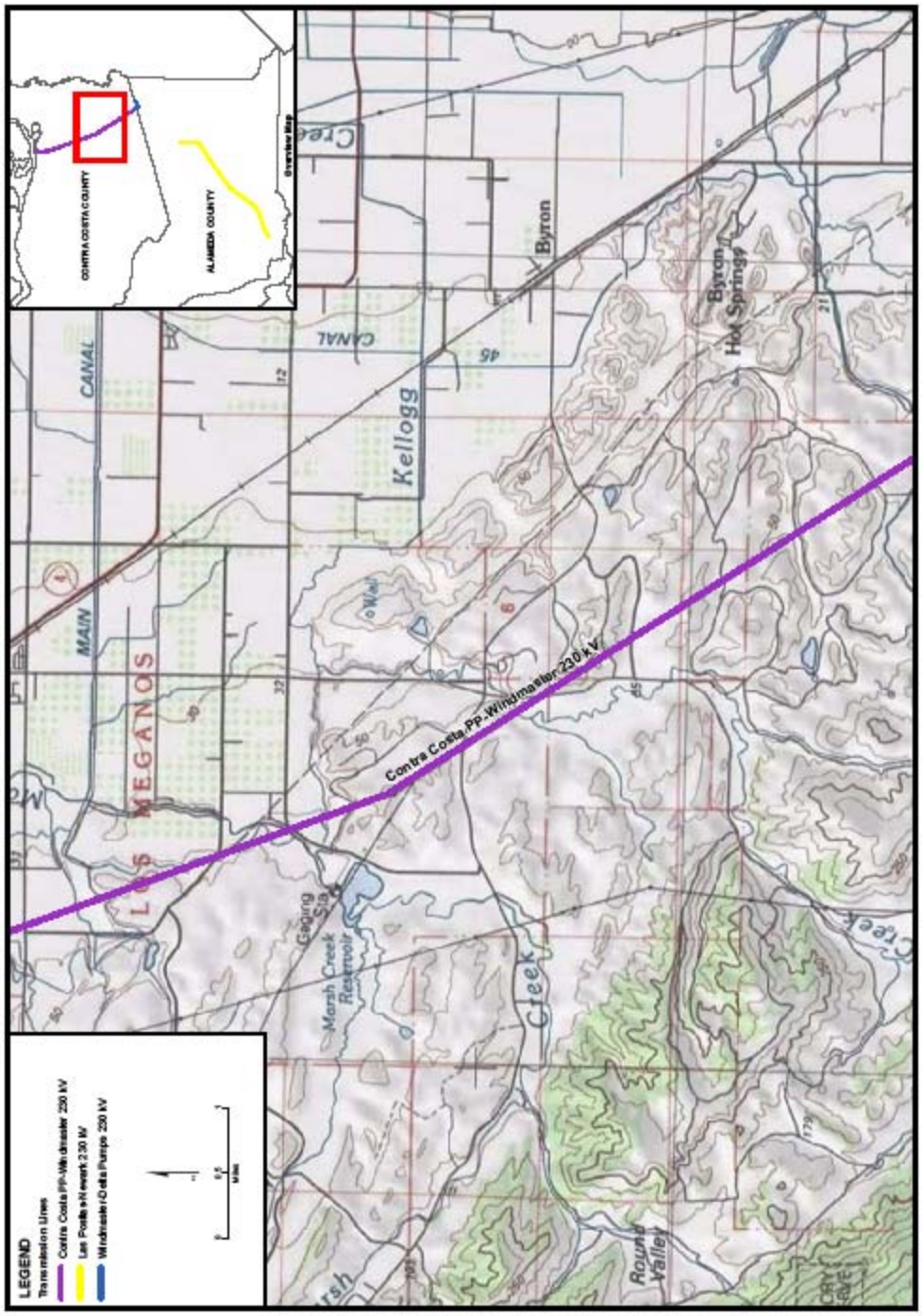
SOURCE: Data Response to Data Request 74

TRANSMISSION SYSTEM ENGINEERING

FIGURE 2B

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Contra Costa PP to Delta Pumps Transmission Line



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

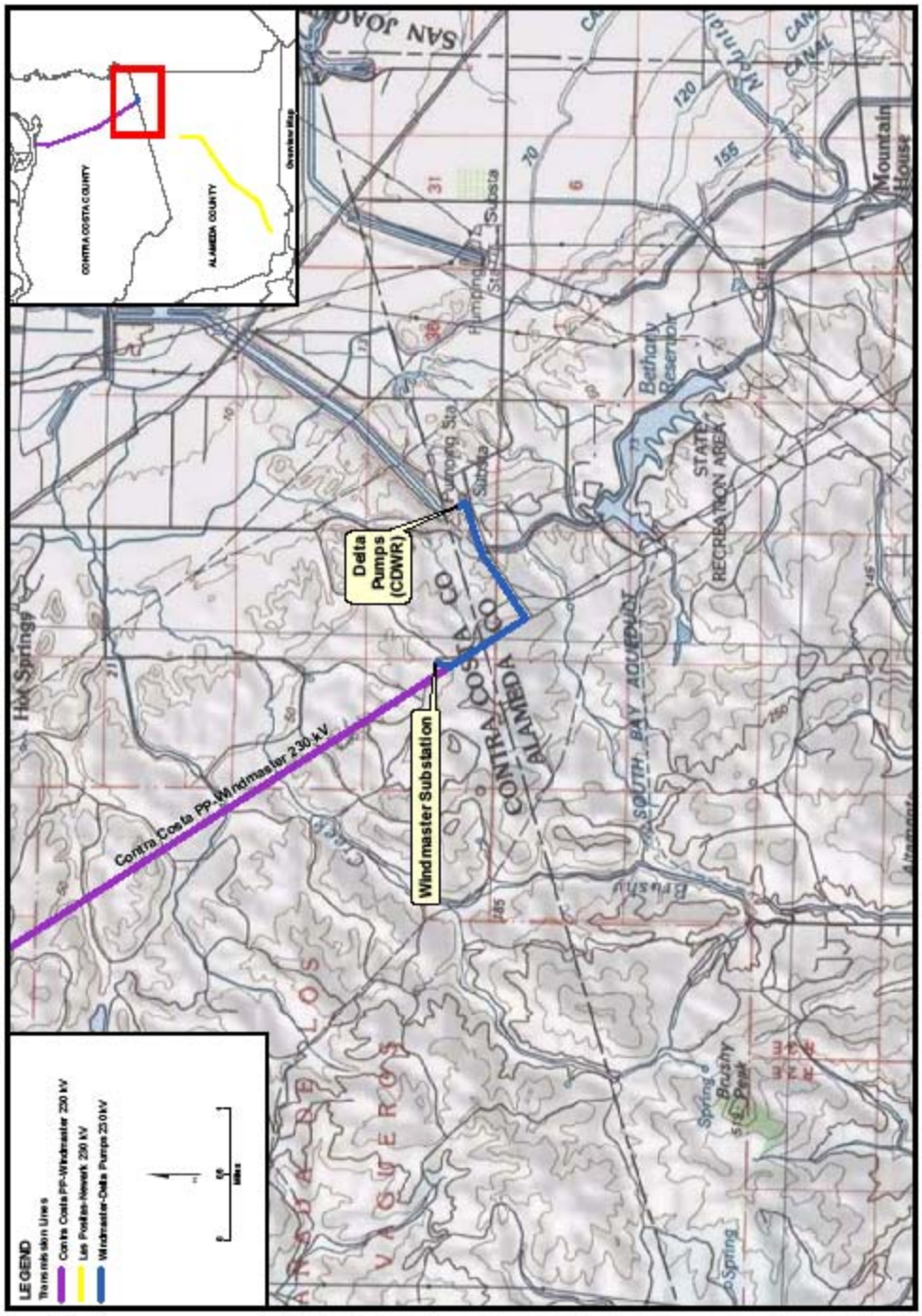
SOURCE: Data Response to Data Request 74

TRANSMISSION SYSTEM ENGINEERING

FIGURE 2C

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Contra Costa PP to Delta Pumps Transmission Line



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

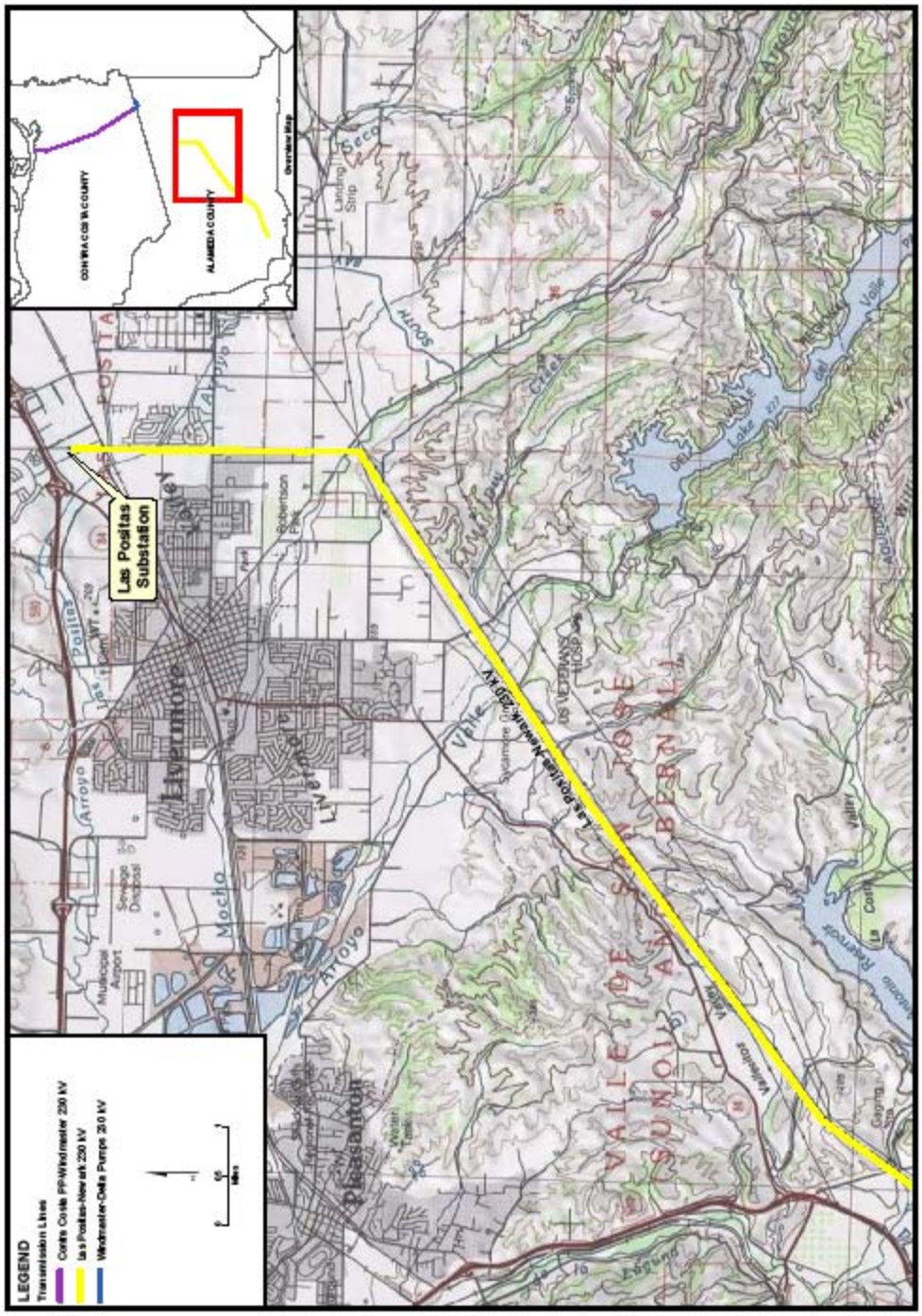
SOURCE: Data Response to Data Request 74

TRANSMISSION SYSTEM ENGINEERING

FIGURE 3A

TRANSMISSION SYSTEM ENGINEERING - APPENDIX A

Oakley Generating Station - Project Location - Las Positas to Newark Transmission Line

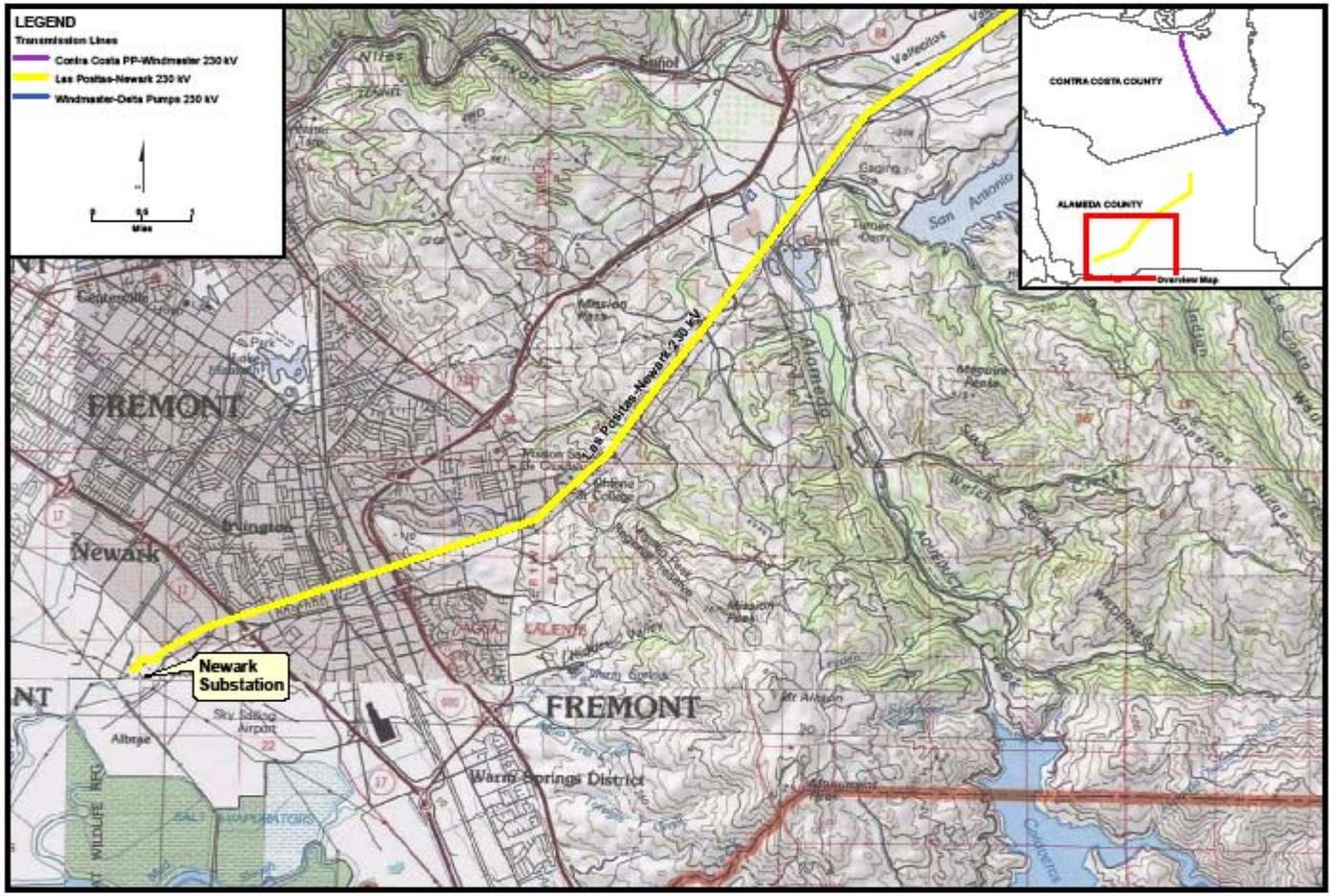


CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Data Response to Data Request 74

TRANSMISSION SYSTEM ENGINEERING

FIGURE 3B
TRANSMISSION SYSTEM ENGINEERING - APPENDIX A
Oakley Generating Station - Project Location - Las Positas to Newark Transmission Line



TRANSMISSION SYSTEM ENGINEERING

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: Data Response to Data Request 74

E. TRANSMISSION LINE SAFETY AND NUISANCE

The project's transmission lines must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This section summarizes the analysis of record concerning the potential impacts of the transmission tie-line on aviation safety, radio-frequency interference, audible noise, fire hazards, nuisance shocks, hazardous shocks, and electromagnetic field exposure. The evidence presented was undisputed. (3/15/11 RT 67-77; Exs. 1, § 3.0, Appendix 3B, 55; 300, § 4.11.)

Laws, ordinances, regulations, and standards (LORS) have been established to ensure that transmission line impacts are below levels of potential significance. Our evaluation below assesses the project's compliance with LORS.

Transmission Line Safety and Nuisance Table 1 below identify the applicable LORS.

TRANSMISSION LINE SAFETY AND NUISANCE (TLSN) Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space"	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space"	Addresses the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA in cases of potential for an obstruction hazard.
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Interference with Radio Frequency Communication	
Federal	
Title 47, CFR, section 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.
State	
California Public Utilities Commission (CPUC) General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate interference.

Applicable LORS	Description
Audible Noise	
Local	
City of Oakley General Plan.	Establishes plans for ensuring compatibility between noise levels and land uses.
City of Oakley Municipal Code.	Includes quantitative limits on allowable noise for various land uses.
City of Antioch General Plan	Establishes plans for ensuring compatibility between noise levels and land uses.
City of Antioch Municipal Code	Includes noise regulations associated with construction and operation of various land uses, among other noise-related regulations.
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, "Rules for Overhead Electric Line Construction"	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders"	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
Industry Standards	
Institute of Electrical and Electronics Engineers (IEEE) 1119, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Specifies the guidelines for grounding-related practices within the right-of-way and substations.
Electric and Magnetic Fields	
State	
CPUC GO-131-D, "Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California"	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR sections 1250–1258, "Fire Prevention Standards for Electric Utilities"	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The OGS Project will connect to the area's electric power grid by way of a 2.4-mile-long single-circuit 230-kV line from the project's new on-site switchyard to Pacific Gas & Electric's (PG&E) 230-kV Contra Costa Substation. The line will be located within an existing 80-foot-wide right-of way in which there is an existing 60-kV PG&E transmission line. The existing 60-kV line is carried on steel lattice towers. The replacement 230-kV project line will be carried on new monopole structures. The OGS line will exit the project site on 20-foot-high take-off structures and then be routed on support structures up to 95 feet in height.

The transmission line route will traverse land within the City of Oakley and the City of Antioch. The affected Oakley land is zoned for agricultural and industrial uses and the affected Antioch land is designated for office and residential development.

The 80-foot-right of way will separate the transmission line from nearby residences within the Sandy Point Trailer Park.

Transmission Line Safety and Nuisance Figure 1 below shows the proposed transmission route.

TRANSMISSION LINE SAFETY AND NUISANCE FIGURE 1

Oakley Generating Station – Vicinity Map

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 1.1-2

The OGS transmission line and switchyard will be located in the PG&E service area and connect to the PG&E power grid. As a result, their respective designs will be according to PG&E's guidelines on safety and field management. (Ex. 300, p. 4.11-4.)

1. Potential Impacts

a. Aviation Safety

When transmission lines or their support structures intrude into the navigable air space there is potential for aircraft to collide with these structures. In this case, the record shows that the project's transmission line and support structures are neither near nor within restricted air space. Nor are there airports or runways in the area around the OGS site. The nearest airport is the Funny Farm Airport approximately seven miles southeast of the project site and facilities. There are no heliports within 5,000 feet of the project site and facilities.

Further, because the OGS transmission line supports are not expected to exceed a maximum height of 95 feet, the project will not trigger the Federal Aviation Administration's requirement for a Notice of Proposed Construction or Alteration. This Notice is required when lines or supports reach 200 feet in height and are within restricted airspaces in the approaches to public or military airports. Even so, the evidence indicates that the Applicant will follow industry practice and file the related FAA notification. (Exs. 1, p. 3-16; 300, pp. 4.11-4 - 4.11-5.) .

Based on the evidence, we find that the project does not pose an aviation hazard under FAA criteria and there are no impacts requiring mitigation.

b. Interference with Radio-Frequency Communication

Radio-frequency interference is an indirect effect of line operation. This interference is due to radio noise produced by the action of electric fields on the surface of the energized conductor. This process is known as corona discharge. The noise caused by this discharge causes interference with radio or television signal reception or interference with other forms of radio communication.

The level of any such interference usually depends on the magnitude or the electric fields involved and the distance from the line. As a result, the potential for such impacts is minimized by reducing the line electric fields and locating the line away from inhabited areas. And, as discussed above, because of the absence of residences in the immediate vicinity of the OGS transmission line

there would no residential electric and magnetic field exposures to trigger concern about human health effects.

The evidence shows that the OGS Project's transmission line will be built and maintained in accordance with standard PG&E practices that minimize surface irregularities and discontinuities. The low-corona design proposed for the OGS Project is consistent with the designs used for other PG&E lines of similar voltage ratings to reduce surface-field strengths and the related potential for corona effects.

Furthermore, as explained by the evidence, potential for corona-related interference typically occurs when lines of 345-kV and above are involved. Because the project proposes use of a 230-kV line, the potential for such interference is minimal. (Exs. 1, pp. 3-15; 300, p. 4.11-5.)

Although the project is not likely to cause corona-related radio-frequency interference, we have adopted Staff-proposed Condition of Certification **TLSN-5**, which requires the project owner to ensure that every reasonable effort will be made to identify and correct on a case-specific basis, any complaints of interference with radio or television signals from operation of the project-related line and associated switchyard. With implementation of **TLSN-5**, impacts to radio-frequency communication will be less than significant.

c. Audible Noise

The record includes an evaluation of the causes of audible radio noise and methods of reduction. Audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying, or hissing sound or hum, especially in wet weather. Because OGS will implement low-corona designs to minimize field strengths, the project's transmission line operation should not significantly contribute to existing background noise levels in the project area. (Exs. 1, p. 3-15; 300, pp. 4.11-5 - 4.11-6.) The **Noise and Vibration** section of this Decision more fully evaluates project-induced noise and discusses the project's compliance with applicable noise LORS.

d. Fire Hazards

The applicable LORS address fire hazards, including those caused by sparks from conductors of overhead lines and resulting from direct contact between a

line and nearby trees and other combustible objects. The evidence establishes that the OGS Project's transmission line is subject to standard fire prevention and suppression measures for similar PG&E lines. (Exs. 1, p. 3-16; 300, p. 4.11-6.) And, as required by Condition of Certification **TLSN-3**, the project owner will ensure that the transmission line right-of-way is kept free of combustible material as specified by Public Resources Code section 4262 and Title 14, California Code of Regulations, Section 1250.

e. Hazardous Shocks

Hazardous shocks can result from direct or indirect contact between an individual and an energized line. These shocks can cause serious physiological harm or death and remain a motivating force in the design and operation of transmission and other high-voltage lines. However, no design-specific federal or state regulations exist to prevent hazardous shocks from overhead power lines. Instead, safety is ensured within the industry by compliance with requirements specifying the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. (Ex. 300, p. 4.11-6.)

As required by Condition of Certification **TLSN-1**, the project owner must construct the transmission line according to the requirements of California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2, High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and PG&E's EMF-reduction guidelines. Compliance with **TLSN-1** will mitigate any risk of hazardous shock to a less than significant level.

f. Nuisance Shocks

Nuisance shocks, which are caused by current flow, primarily result from direct contact with metal objects electrically charged by fields from the energized line. These shocks are generally incapable of causing significant physiological harm.

There are no design-specific federal or state regulations to limit transmission line-related nuisance shocks. But, as the evidence shows, these shocks are effectively minimized for modern overhead high-voltage lines through implementation of standard grounding procedures. The procedures are set forth in the National Electrical Safety Code (NESC) and in guidelines jointly promulgated by the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). (Exs. 1, pp. 3-15 – 3-16; 300, p. 4.11-7.) The project owner's compliance with these procedures as

required by Condition of Certification **TLSN-4** will minimize the potential for nuisance shocks. **TLSN-4** specifically tasks the project owner to ensure that all permanent metallic objects within the right-of-way of the project-related line are grounded according to industry standards.

g. Electric and Magnetic Field Exposure

Possible adverse health effects from exposure to electric and magnetic fields (EMF) raise public health concerns for people living near high-voltage lines. However, there is no clear evidence establishing that EMF fields pose a significant health hazard to exposed humans. Indeed, even the short-term exposures of plant workers, regulatory inspectors, maintenance personnel, and individuals in the immediate vicinity of lines, are not significantly related to the above-stated health concern. (Ex. 300, p. 4.11-7.)

Even though there is considerable uncertainty about EMF health effects, current policies and practices are informed by the available information showing that:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

The California Public Utilities Commission (CPUC) regulates the installation and operation of high-voltage lines and has determined that only no-cost or low-cost measures are justified in any effort to reduce power line fields to address EMF-related health concerns, and that these measures should be made only in connection with new or modified lines. In this regard, the CPUC requires each utility within its jurisdiction to establish EMF-reducing measures and incorporate them into the design of new or modified powerlines for each service area.

The CPUC requires each new transmission line in California to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved. EMF fields produced by new lines must be similar to the fields of comparable lines in that service area. To comply with CPUC requirements for EMF management, PG&E's specific field strength-reducing measures will be incorporated into the project line's design and include:

- Increasing the distance between the conductors and the ground to an optimal level;
- Reducing the spacing between the conductors to an optimal level;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from the interacting of conductor fields. (Ex. 300, p. 4.11-9.)

The evidentiary record contains the Applicant's estimate of field strengths for locations or line configurations potentially related to maximum human exposures. The Applicant estimates the maximum electric field strength at the edge of the 80-foot right-of-way at 3.03-kV/m and the maximum magnetic field at 122.89 mG. The evidence establishes that these field strengths are consistent with PG&E lines of the same voltage and current-carrying capacity and in turn, are compliant with CPUC requirements for safe field management. (Exs. 1, Appendix 3B; 300, p. 4.11-9.)

By designing the proposed project line according to existing PG&E field strength-reducing guidelines, OGS would comply with CPUC requirements for line field management. However, to verify that the Applicant's estimates are the same as or similar to actual OGS field strength measurements during plant operation, we require implementation of Condition of Certification **TLSN-2**. This condition tasks the project owner to measure (according to accepted procedures) the strengths of the electric and magnetic fields, from the line at the points of maximum intensity along its route after line energization, to verify that field intensities are the same as or similar to those of other PG&E lines.

2. Cumulative Impacts

When field intensities are measured or calculated for a specific location, they reflect the interactive effects (cumulative effects) of fields from all contributing conductors. As discussed above, the OGS transmission line would be designed and constructed according to applicable field-reducing PG&E guidelines as currently required by the CPUC for effective field management. As a consequence, any contribution by OGS to cumulative area exposures should be at levels expected for PG&E lines of similar voltage and current-carrying capacity. We therefore find that with implementation of the Conditions of Certification below, any potential cumulative impacts resulting from the OGS project would be less than significant. (Ex. 300, p. 4.11-10.)

3. Compliance with LORS

The evidence establishes that the OGS transmission line and switchyard will be designed according to the requirements of the LORS identified above in **Transmission Line Safety and Nuisance Table 1**, and operated and maintained according to current PG&E guidelines for line safety and field strength management. (Exs. 1, pp. 3-13 – 3-19; 300, § 4.11.) The project's compliance with local LORS regarding audible noise is further discussed in the **Noise and Vibration** section of this Decision.

4. Public and Agency Comments

The City of Antioch Community Development Department commented on Preliminary Staff Assessment Part A, pertaining to Transmission Line Safety and Nuisance (TLSN). The City noted the following items: (1) that its LORS relating to audible noise were not included in Staff's analysis; (2) the portion of the transmission line corridor located in the City have land use designations of medium low density residential and business park but potential impacts on these designations were not evaluated; (3) the record should include a map showing the location of OGS monopoles and the Applicant should submit a final site plan to the City showing construction and laydown areas for the transmission line work; and (4) OGS should obtain an encroachment permit from the City for work within City right-of-ways.

Staff responded to or acted on each concern as follows: (1) Staff updated **TLSN Table 1** to reference applicable City LORS and ensured that the FSA TLSN and Land Uses analyses address City land uses potentially affected by the transmission corridor (see, e.g., Ex. 300, pp. 4.11-3 – 4.11-4, **Land Use Table 1**, pp. 4.5-4 – 4.5-6, 4.5-10, 4.5-14 – 4.5-18, 4.5-21 – 4.5-22); and (2) Staff noted that the City's concerns pertaining to monopole and laydown area locations and encroachment permits are adequately addressed by Conditions of Certification **TRANS-1** and **TRANS-4** in the Traffic and Transportation section of the FSA. (Ex. 300, pp. 4.11-10 – 4.11-11.)

We find that the City's concerns have been adequately addressed by Staff in the FSA and incorporated into this Decision.

FINDINGS OF FACT

Based on the evidence, we find that:

1. Long-term electromagnetic field exposure is insignificant in this case because of the general absence of residences along the proposed route. On-site worker or public exposure will be short-term and at levels expected for lines of similar design and current-carrying capacity. This type of exposure has not been established as posing a significant human health hazard.

2. The potential for nuisance shocks will be minimized through grounding and other field-reducing measures performed in accordance with PG&E guidelines.

3. The potential for hazardous shocks will be minimized with compliance with the height and clearance requirements of CPUC General Order 95.

4. There are no potential fire hazards associated with the project's transmission lines. However, compliance with Title 14, California Code of Regulations, section 1250, will minimize possible fire hazards.

5. Neither the project location nor the proposed related lines and line supports poses a significant aviation hazard.

6. Building and maintaining the project's lines in accordance with standard PG&E practices minimizes the potential for corona noise and its related interference with radio-frequency communication.

7. The Conditions of Certification reasonably ensure that the project's transmission line will not have significant direct, indirect, or cumulative adverse environmental impacts on public health and safety, nor cause impacts in terms of aviation safety, radio/TV communication interference, audible noise, fire hazards, nuisance or hazardous shocks, or electromagnetic field exposure.

CONCLUSION OF LAW

We therefore conclude that, with implementation of the Conditions of Certification below, the project will conform to all applicable laws, ordinances, regulations, and standards relating to Transmission Line Safety and Nuisance as identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed 230-kV transmission line according to the requirements of California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2, High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and PG&E's EMF-reduction guidelines.

Verification: At least 30 days before starting construction of the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the line will be constructed according to the requirements stated in the condition.

TLSN-2 The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity along its route. The measurements shall be made after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed not later than six months after the start of operations.

Verification: The project owner shall file copies of the post-energization measurements with the CPM within 60 days after completion of the measurements.

TLSN-3 The project owner shall ensure that the rights-of-way of the proposed transmission line is kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.

Verification: During the first five years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report.

TLSN-4 The project owner shall ensure that all permanent metallic objects within the right-of-way of the proposed lines are grounded according to industry standards.

Verification: At least 30 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

TLSN-5 The project owner shall ensure that every reasonable effort will be made to identify and correct, on a case-specific basis, any complaints of interference with radio or television signals from operation of the project-related line and associated switchyards. The project owner shall maintain written records for a period of five years, of all

complaints of radio or television interference attributable to line operation together with the corrective action taken in response to each complaint. This record shall be submitted in an Annual Report to the CPM on transmission line safety and nuisance-related requirements.

Verification: All reports of line-related complaints shall be summarized for the project-related lines and included during the first five years of plant operation in the Annual Compliance Report.

V. PUBLIC HEALTH AND SAFETY

Operation of the OGS Project will create combustion products and utilize certain hazardous materials that pose health risks to the general public and to the workers at the facility. The following discusses the regulatory programs, standards, protocols, and analyses pertaining to these issues.

A. GREENHOUSE GAS (GHG) EMISSIONS

1. Introduction and Summary

The generation of electricity using fossil fuels, such as the natural gas that the OGS Project will consume, produces both "criteria pollutants" and greenhouse gas (GHG) emissions. Criteria pollutants are emissions that are known to adversely affect public health and for which regulatory agencies have established legal "criteria" which limit both the amount of the pollutants that may be emitted as well as the concentrations of the pollutants in the air. The project's criteria pollutant emissions and its compliance with applicable air quality laws are discussed in the **Air Quality** section of this Decision. This section assesses the GHG emissions that are likely to result from the construction and the operation of the project.

The GHG's consist of carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFC), and perflurocarbons (PFC). CO_2 emissions are far and away the most common of these emissions. As a result, even though the other GHGs have a greater impact on climate change on a per-unit basis, GHG emissions are often expressed in terms of "metric tons of CO_2-equivalent" ($MTCO_2e$) for simplicity.

There is general scientific consensus that climate change is occurring and that man-made emissions of GHG, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. (Ex. 300, p. 4.1-77.) Adding GHG to the atmosphere increases the insulating power of the air and thereby traps more heat at and near the earth's surface. The California Legislature has declared that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." [Health & Saf. Code, § 38501(a).]

In this part of the Decision we determine that:

- The OGS Project's construction-produced GHG emissions will be insignificant;

- From a physical standpoint, the GHG emissions from a power plant's operation should be assessed not by treating the plant as a standalone facility operating in a vacuum, but rather in the context of the operation of the entire electricity system of which the plant is an integrated part;

- From a policy and regulatory standpoint, the GHG emissions from a power plant's operation should be assessed in the context of the state's GHG laws and policies, such as AB 32; and

- The OGS Project's operation will be consistent with the state's GHG policies and will help achieve the state's GHG goals, by (1) causing a decrease in overall electricity system GHG emissions; and (2) fostering the addition of renewable generation into the system, which will further reduce system GHG emissions.

As discussed below, we find that the OGS's GHG emissions will comply with all applicable laws, ordinances, regulations, and standards (LORS) identified below in **Greenhouse Gas Table 1** and will not result in any significant environmental impacts. We also find that the project is consistent with California's ambitious GHG goals and policies.

The evidence on this topic was undisputed. (3/15/11 RT 67-77, Exs. 1, §5.1, Appendix 5.1, 2, 3, 7, 10, 12, 15, 16, 22, 25, 26, 32, 35, 36, 37, 39, 45, 46, 49, 50, 55, 57, 300, § 4.1 - Air Quality Appendix AIR-1, 301, 406.)

2. Policy and Regulatory Framework

As the Legislature stated about 35 years ago, "it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection." (Pub. Res. Code, § 25001.) Today, as a result of legislation, the most recent aspect of "environmental quality protection" is the reduction of GHG emissions. Several laws and statements of policy are applicable as shown below by **Greenhouse Gas Table 1.**

Greenhouse Gas Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Mandatory Reporting of Greenhouse Gases (40 CFR 98, Subpart D)	The mandatory reporting rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tonnes of CO_2-equivalent emissions per year.
Prevention of Significant Deterioration Program (40 CFR 51 & 52)	Any new source of GHG exceeding 100,000 tons per year CO_2-equivalent and commencing construction after July 1, 2011 would be considered to be a major stationary source and subject to PSD permitting requirements including review of Best Available Control Technology.
State	
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)	California Global Warming Solutions Act of 2006. This act requires the California Air Resources Board (ARB) to enact standards that will reduce GHG emissions to 1990 levels. Electricity production facilities will be regulated by the ARB.
California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq.	ARB regulations implementing mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)
California Code of Regulations, tit. 20, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	The regulations prohibit utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 $MTCO_2$/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lb CO_2/MWh). Known as SB 1368 (Perata, Chapter 598, Statutes of 2006) Emission Performance Standard.

Source: Ex. 300, p. 4.1-77

a. AB 32

The organizing framework for California's GHG policy is set forth in the California Global Warming Solutions Act of 2006. [Assembly Bill 32, codified in Health & Saf. Code, § 38560 et seq. (hereinafter AB 32).] AB 32 requires the California Air Resources Board ("CARB") to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the level of statewide GHG emissions that existed in 1990. Gubernatorial Executive Order S-3-05 (June 1, 2005) requires a further reduction, to a level 80 percent below the 1990 GHG emissions, by the year 2050.

The CARB adopted early action GHG reduction measures in October 2007, adopted mandatory reporting requirements and the 2020 statewide target in December 2007, and adopted a statewide scoping plan in December 2008 to identify how reductions in GHG will be achieved from significant sources of GHG. On December 16, 2010 ARB adopted structural requirements for a GHG cap and trade program and by October 2011 must adopt all enabling regulations, including several provisions that will affect new power plants. These regulations must be submitted to California's Office of Administrative Law for approval so that they could become operational by January 2012. ARB is developing the rules and regulations to implement its plan and holds ongoing public workshops on key elements of the recommended GHG reduction measures. Many of the regulations implementing the scoping plan are already effective. The mandatory reporting requirements are effective for electric generating facilities over 1 megawatt (MW) capacity, and the due date for initial reports by existing facilities was June 1, 2009.

Along with all other regulatory agencies in California, the Energy Commission recognizes that meeting the AB 32 goals is vital to the state's economic and environmental health. While AB 32 goals have yet to be translated into regulations that limit GHG emissions from generating facilities, the scoping plan adopted by ARB relies heavily on cost-effective energy efficiency and demand response, renewable energy, and other priority resources in the loading order (discussed below) to achieve significant reductions of emissions in the electricity sector by 2020. Even more dramatic reductions in electricity sector emissions would likely be required to meet California's 2050 greenhouse gas reduction goal. Facilities under our jurisdiction, such as the OGS Project, must be consistent with these policies. (Ex. 300, p. 4.1-78).

In addition to AB 32, there are several other important components of the GHG policy and regulatory structure.

b. Renewable Portfolio Standard

California statutory law requires the state's utilities to provide at least 20 percent of their electricity supplies from renewable sources by the year 2020. (Pub. Util. Code, § 399.11 et seq.) Recent gubernatorial Executive Orders increase the requirement to 33 percent and require CARB to adopt regulations to achieve the goal. [Governor's Exec. Orders Nos. S-21-09 (Sept. 15, 2009), S-14-08 (Nov. 17, 2008).] (Ex. 300, pp 4.1-77.)

c. Emissions Performance Standard

Senate Bill (SB) 1368 was enacted in 2006, and regulations adopted by the Energy Commission and the Public Utilities Commission pursuant to the bill, prohibit utilities from entering into long-term commitments with any facilities having a capacity factor greater than or equal to a 60 percent that exceed an Emission Performance Standard (EPS) of 0.500 metric tonnes of CO_2 per megawatt-hour. This is the equivalent of 1,100 pounds CO_2/MWh. Currently, the EPS is the only LORS that limits power plant GHG emissions. (Ex. 300, p. 4.1-79, Pub. Util. Code, § 8340 et seq.; Cal. Code Regs., tit. 20, § 2900 et seq.; CPUC D0701039.).)

d. Loading Order

In 2003, the Energy Commission and the CPUC agreed on a "loading order" for meeting electricity needs: the first resources that should be added are energy efficiency and demand response (at the maximum level that is feasible and cost-effective); followed by renewables and distributed generation, and combined heat and power (also known as cogeneration); and finally efficient fossil sources and infrastructure development. (California Energy Commission 2008, *2008 Integrated Energy Policy Report Update*, (IEPR) (CEC-100-2008-008-CMF). CARB's AB 32 Scoping Plan reflects these policy preferences. (California Air Resources Board, *Climate Change Scoping Plan*, December 2008).

e. Energy Commission Policy on New Gas-Fired Power Plants

Implementation of the state and Energy Commission policies discussed above should result in increasing availability and flexibility of renewable generation. Gas-fired power plants such as OGS currently play a vital role in advancing the state's climate and energy goals by displacing less-efficient generation resources and facilitating the integration of renewables into the system. However, as the

Energy Commission observed in its recent decision on the *Avenal* Energy Plant project (08-AFC-1)[1], the ability of gas-fired generation to contribute to the State's climate and energy goals is limited. The availability of renewable generation will increase as new projects are licensed and built and the technology develops. Efficiency and conservation measures have already had a substantial impact on California's energy consumption, and new measures continue to be implemented. We therefore expect that the proportion of gas generation in the state's generation mix will gradually diminish. Accordingly, we must evaluate the consistency of each proposed gas-fired power plant with these policies in order to ensure that we license only those plants which will help to reduce GHG.

In the *Avenal* Decision, the Energy Commission established a three-part test to aid in its analysis of a proposed gas-fired plant's ability to advance the goals and policies described above. Gas-fired plants must:

1. not increase the overall system heat rate for natural gas plants;

2. not interfere with generation from existing renewable facilities nor with the integration of new renewable generation; and

3. reduce system-wide GHG emissions and support the goals and policies of AB 32.

We now turn to a discussion of whether, and how well, the OGS Project would comply with the above-stated policies.

3. Construction Emissions

Power plant construction involves increases in vehicle and equipment emissions that include GHG. The OGS Project's construction emissions are projected at 12,387 metric tons of CO_2-equivalent GHG during the 33-month construction period as shown below in **Green House Gas Table 2**. By way of comparison, as discussed in the next section, the project's GHG emissions from operations are estimated to be 1,884,810 metric tons annually, which is over 150 times the construction emissions. (Ex. 300, pp. 4.1-81 – 4.1-82.)

[1] California Energy Commission, 2009 Final Commission Decision for the Avenal Energy Plant (CEC-800-2009-006-CMF, December 2009).

Greenhouse Gas Table 2
OGS, Estimated Potential Construction Greenhouse Gas Emissions

Construction Source	**Construction-Phase GHG Emissions (MTCO2e)** [a]
Onsite construction equipment	10,524
Worker travel to/from construction site [b]	1,013
Deliveries to construction site [b]	806
Rail deliveries to construction site	44
Construction Total	12,387

Source: Ex. 1 Appendix 5.1E (CH2MHILL2010d); DR32, DR33 (CH2MHILL2010a); WSQ4-1 (CH2MHILL2010m).
Notes:
a. One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
b. Motor vehicle emissions of CO2-equivalent are approximately 95% CO_2

There are no adopted, enforceable federal or state LORS applicable to the project's construction emissions of GHG. Nor is there a quantitative threshold over which GHG emissions are considered "significant" under CEQA. Nevertheless, there is guidance from regulatory agencies on how the significance of such emissions should be assessed.

We understand that "best practices" include the implementation of all feasible methods to control construction-related GHG emissions. As the "best practices" approach is currently recommended by CARB (i.e., the state agency primarily responsible for air quality standards and GHG regulation), we use it here to assess the GHG emissions from the OGS Project's construction.

In order to limit vehicle emissions of both criteria pollutants and GHG during OGS construction, the project owner will use operational measures, such as limiting vehicle idling time and using equipment that meets the latest criteria emissions standards. These are the current "best practices" for limiting emissions from construction equipment; no party suggested otherwise. (Ex. 300, p. 4.1-94, See, e.g., **Air Quality** Condition of Certification **AQ-SC5**.)

We find that the measures described above to directly and indirectly limit the emission of GHGs during the construction of the OGS Project are in accordance with current best practices. We also note that the GHG emissions anticipated from construction are minimal compared with anticipated operational emissions. GHG emissions will be intermittent and mitigated during that time due to the implementation of the best practices incorporated into **Air Quality** Condition of

Certification **AQ-SC5**. We therefore find that the GHG emissions from short-term construction activities will not result in a significant adverse impact.

4. Emissions During Operation of the Facility

a. OGS Project Emissions

OGS will be a combined-cycle power plant providing a nominal capacity of 624 MW through two stationary combustion turbine-generators and a steam turbine generator. The facility will be available for either base load or load following duty, and will be allowed to operate at an annual capacity factor of 97 percent.

The primary sources of GHG emissions during the OGS project's operation will be the natural gas-fired combustion turbines. There will also be a small amount of GHG emissions from sulfur hexafluoride leaking from electrical equipment. In operation, the project is expected to produce 1,884,810 metric tons of CO_2 equivalent annually as shown below in **Green House Gas Table 3**, if the facility operates at its maximum capacity factor. (Ex. 300, pp. 4.1-81 - 4.1-82.)

Greenhouse Gas Table 3
OGS, Estimated Potential Greenhouse Gas (GHG) Emissions

Emissions Source	**Operational GHG Emissions (MTCO2e/yr)** [a]
Combustion Turbine Generators (Two CTGs) [c]	1,873,220
Auxiliary Boiler	11,569
Diesel Fire Water Pump Engine	10
Worker Commutes (Off-Site) [b]	58
Material Deliveries (Off-Site) [b]	20
Equipment Leaks (SF_6)	11
Total Project GHG Emissions, excluding Off-Site Emissions (MTCO2e/yr)	**1,884,810**
Estimated Annual Energy Output (MWh/yr) [c]	5,281,000
Estimated Annualized GHG Performance (MTCO2/MWh) [d]	**0.357**

Sources: AFC Supplement Table 5.1A-11 (CH2MHILL2010d); Response to DR28 (CH2MHILL2010a); (BAAQMD 2011a).
Notes:
a. One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
b. Motor vehicle emissions of CO2-equivalent are approximately 95% CO_2.
c. Based on maximum permitted capacity of up to 624 MW at 8,463 hours annually (97% annual capacity factor).
d. This rate does not depend on capacity factor or hours of operation per year

The project's annual GHG emissions from operation are projected to equate to an annualized emissions performance factor of 0.357 metric tons of CO_2 per megawatt hour, which meets the Emission Performance Standard (EPS) of 0.500 metric tons of CO_2 per megawatt-hour described above. (Ex. 300, p. 4.1-82.)

As we also noted above, the EPS is the only GHG LORS currently applicable to the OGS Project's operation emissions and determining compliance was readily calculated. Assessing whether the project's operational emissions are "significant" under CEQA is a more complicated matter.

b. Determining Significance: the Necessity of a System Approach

The process of electricity generation, production, and consumption is unique compared to other industrial projects. As a result, assessing the GHG impacts of power plants requires an approach that is different from the approach taken to analyze any other type of project, whether the analysis is scientific or legal.

In general, when an agency conducts a CEQA analysis of a project such as a proposed factory, shopping mall, or residential subdivision, it does not need to analyze how the operation of the proposed project will affect the larger system or group of factories, malls, or houses in a large multistate region. Rather, such projects are generally analyzed and evaluated on a stand-alone basis. The analysis and evaluation for power plants is, by necessity, different.

California's electricity system – which is actually a system serving the entire western region of the U.S., Canada, and Mexico – is large and complex. Hundreds of power plants, thousands of miles of transmission and distribution lines, and millions of points of electricity demand operate in an interconnected, integrated, and simultaneous fashion. Because the system is integrated, and because electricity is produced and consumed instantaneously, and will be unless and until large-scale electricity storage technologies are available, any change in demand and, most important for this analysis, any change in output from any generation source, is likely to affect the output from all generators. (Committee CEQA Guidance (*Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications),* CEC-700-2009-004.)[2]

[2] The report was issued in March 2009 and is found on the Commission website at: **http://www.energy.ca.gov/2009publications/CEC-700-2009-004/CEC-700-2009-004.PDF**

Not only is the electricity system integrated physically, but it also operates as such. The California Independent System Operator (CAISO) is responsible for operating the system so that it provides power reliably and at the lowest cost. Thus, the CAISO dispatches generating facilities generally in order of cheapest to operate (i.e., typically the most efficient) to most expensive (i.e., typically the least efficient). *(Id.)* Because operating cost is correlated with heat rate (the amount of fuel that it takes to generate a unit of electricity), and, in turn, heat rate is directly correlated with emissions (including GHG emissions), *when one power plant runs, it usually will take the place of another facility with higher emissions that otherwise would have operated.* (Committee CEQA Guidance, *2007 IEPR.)*

In sum, the unique way power plants operate in an integrated system means that we must assess their operational GHG emissions on a system-wide basis rather than on a stand-alone basis.

We now turn to the specifics of the project's operation.

c. OGS's Effects on the Electricity System

1) Providing Capacity and Ancillary Services

Power plants serve a variety of functions. Most obviously, they provide energy to keep lights shining and machinery working (typically referred to as "load"). But in order to keep the system functioning properly, they must also meet local needs for capacity and for the "ancillary services" of regulation, spinning reserve, non-spinning reserve, voltage support, and black start capability.

Even as more renewable generation is introduced into the system, new and efficient gas-fired power plants such as OGS will be necessary to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support, as well as meet local capacity requirements. At this time, gas-fired plants are better able to provide such services than are most renewables because they can be called upon when they are needed (i.e., dispatchable). (Ex. 300, pp. 4.1-90-4.1-83.)

2) Displacement of More-Costly, Less-Efficient, and Higher-Emitting Power Plants

The OGS project will have a heat rate of 6,779 Btu/kWhr, which leads to a maximum estimated GHG performance factor of 0.36 MTCO2/MWh. (Ex. 300, p.

4.1-84.) This heat rate is lower than the heat rates of the other peaking and base load generating units in the Greater Bay Area and would thus be more efficient and emit fewer GHG per MWh of generation that those other units. **Greenhouse Gas Emission Table 4** below compares the OGS plant's heat rate to other power plants in the Greater Bay Area.

Greenhouse Gas Table 4
Greater Bay Area, Local Generation Heat Rates and 2009 Energy Outputs

Plant Name	Heat Rate (Btu/kWh) [a]	2009 Energy Output (GWh)	GHG Performance (MTCO2/MWh)
Gateway Generating Station (became commercial in 2009)	7,123	2,490.2	0.378
Los Medanos Energy Center	7,184	3,394.7	0.381
Delta Energy Center	7,308	5,013.5	0.387
Contra Costa Power Plant, Unit 6	13,499	21.1	0.716
Contra Costa Power Plant, Unit 7	11,182	176.9	0.593
Pittsburg Power Plant, Unit 5	11,461	103.3	0.608
Pittsburg Power Plant, Unit 6	11,918	84.4	0.632
Pittsburg Power Plant, Unit 7	14,629	29.3	0.776
Proposed OGS (at permitted limit)	**6,779**	**5,300 (max est.)**	**0.357**

Source: Energy Commission staff based on Quarterly Fuel and Energy Report (QFER); shows the proposed OGS capacity of up to 624 MW at 8,463 hours annually (97% annual capacity factor).
Notes: a. Based on the Higher Heating Value or HHV of the fuel.

As explained by the evidence, local generating units with the best (lowest) heat rate or lowest GHG performance factor generally operate more than other units with higher heat rates, as shown by the relative amount of energy (GWh) produced in 2009 from the local units. Dispatch order generally follows economic or efficiency dispatch, although it can deviate during any one year or due to other concerns such as permit limits, contractual obligations, droughts, heat waves, local reliability needs or emergencies. These deviations, however, are likely to occur infrequently and are unplanned. Dispatch can also be determined by factors such as ability to quickly start and come up to full load.

Significantly, the flexibility of OGS ensures that it would not increase the overall system heat rate for natural gas-fired power plants because it would provide reliability service without running during times when less flexible units would otherwise be starting. The flexibility of OGS to quickly respond to changing grid conditions should make it preferential to other local units in the dispatch order. (Ex. 300, p. 4.1-84.)

3) Fostering Renewables Integration

Most new renewable generation in California will be wind and solar generated power. But the wind and the sun are not continuous, on-demand resources. As a result, in order to rely on such intermittent sources of renewable-generated power, utilities must have available other, nonrenewable generating resources or significant storage that can fill the gap when renewable generation decreases. Indeed, because of this need for backup generation, or if and when utility-scale storage becomes feasible and cost-effective, nonrenewable generation must increase in order for the state to meet the 20 percent renewable portfolio standard.

OGS would provide flexible, highly dispatchable power. The “Rapid Response” capability of OGS allows each of the combustion turbine generators to start up and reach full load in less than 90 minutes for all cases, and hot/warm startups would occur in less than 30 minutes. OGS would provide short-starting and fast-ramping power under the CAISO use of these terms, which set a fast start as under 10 minutes. OGS would also provide a wide range of turndown operation, and is deemed fast starting in our evaluation because of its ability to come to full load in less than two hours. OGS would not obstruct penetration of renewable energy due to its ability to turn down to low loads and to achieve startups in less than two hours. OGS is likely to serve as an important firming source for intermittent renewable resources in support of California’s RPS and GHG goals. (Ex. 300, pp. 4.1-85 – 4.1-86.)

d. The Limited Benefits of Natural Gas Power Plants

At present, the California electricity system needs new efficient gas-fired generation to displace and replace less efficient generation, and to help integrate additional intermittent renewable generation. But as new gas plants are built to meet those needs, the system will change; moreover, the specific location, type, operation, and timing of each plant will be different. As a result, each plant will have somewhat different impacts. Furthermore, future implementation of

efficiency and demand response measures, and new technologies such as storage, smart grid, and distributed generation, may also significantly change the physical needs and operation of the electrical system.

Therefore, we cannot and should not continue adding gas-fired plants *ad infinitum.* Here the evidence establishes that the OGS project will not increase the system heat rate as it has a lower heat rate than the other generators in the Greater Bay Area. (Compare the OGS heat rate of 6,779 Btu/kWhr with those in **Greenhouse Gas Emissions Table 4** above). As we describe above, it will support, rather than interfere with, existing and new renewable generation. Finally, it will reduce system-wide GHG emissions and otherwise support the goals of AB 32.

We therefore find that GHG emissions from operation activities will not be significant.

FINDINGS OF FACT

1. The GHG emissions from the OGS project construction are likely to be 12,387 $MTCO_2$ equivalent ("$MTCO_2E$") during the 33-month construction period.

2. There is no numerical threshold of significance under CEQA for construction-related GHG emissions.

3. Construction-related GHG emissions will be less than significant if they are controlled with best practices.

4. The project will use best practices to control its construction-related GHG emissions.

5. State government has a responsibility to ensure a reliable electricity supply, consistent with environmental, economic, and health and safety goals.

6. California utilities are obligated to meet whatever demand exists from any and all customers.

7. The maximum annual CO_2 emissions from the OGS project's operation will be 1,884,810 $MTCO_2E$, which constitutes an emissions performance factor of 0.357 $MTCO_2E$ / MWh.

8. Under SB 1368 and implementing regulations, California's electric utilities may not enter into long-term commitments with base load power plants with CO_2 emissions that exceed the Emissions Performance Standard ("EPS") of 0.500 $MTCO_2$/MWh.

9. The EPS in SB 1368 is the only LORS that limits power plant GHG emissions.

10. The OGS project does not exceed the EPS of 0.500 $MTCO_2$/MWh.

11. The California Renewable Portfolio Standard (RPS) requires the state's electric utilities obtain at least 33 percent of the power supplies from renewable sources, by the year 2020.

12. California's power supply loading order requires California utilities to obtain their power first from the implementation of all feasible and cost-effective energy efficiency and demand response, then from renewables and distribution generation, and finally from efficient fossil-fired generation and infrastructure improvement.

13. Even as more renewable generation is added to the California electricity system, gas-fired power plants such as the OGS will be necessary to meet local capacity requirements and to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support.

14. There is no evidence in the record that construction or operation of the OGS will be inconsistent with the loading order.

15. When it operates, OGS will have a heat rate of 6,779 Btu/kWh.

16. When it operates, OGS will displace generation from less-efficient (i.e., higher-heat-rate and therefore higher-GHG-emitting) power plants in the Greater Bay Area.

17. The OGS Project's operation will reduce overall GHG emissions from the electricity system.

18. Intermittent solar and wind generation will account for most of the installation of renewables in the next few decades.

19. Intermittent generation needs dispatchable generation, such as the OGS, in order to be integrated effectively into the electricity system.

20. The OGS Project's operation will foster the addition of renewable generation into the electricity system, which will further reduce system GHG emissions.

21. The addition of some efficient, dispatchable, natural-gas-fired generation will be necessary to integrate renewables into California's electricity system and meet the state's RPS and GHG goals, but the amount is not without limit.

CONCLUSIONS OF LAW

1. The OGS Project's construction-related GHG emissions will not cause a significant adverse environmental impact.

2. The GHG emissions from a power plant's operation should be assessed in the context of the operation of the entire electricity system of which the plant is an integrated part.

3. The OGS Project's operational GHG emissions will not cause a significant environmental impact.

4. The OGS Project is a combined-cycle power plant, designed and intended, for base load generation and will be available for load following duty.

5. The OGS Project's operation will help California utilities meet their RPS obligations.

6. The OGS's construction and operation will be consistent with California's loading order for power supplies.

7. The OGS Project's operation will foster the achievement of the GHG goals of AB 32 and Executive Order S-3-05.

8. The GHG emissions of any power plant must be assessed within the system on a case-by-case basis.

9. The OGS Project will not increase the overall system heat rate for natural gas plants.

10. The OGS Project will not interfere with generation from existing renewables or with the integration of new renewable generation; and

11. The OGS Project will reduce system-wide GHG emissions.

12. Any new natural-gas-fired power plant that we certify must:

a) not increase the overall system heat rate for natural gas plants;

b) not interfere with generation from existing renewables or with the integration of new renewable generation; and

c) have the ability to reduce system-wide GHG emissions.

The OGS Project meets these requirements.

B. AIR QUALITY

Construction and operation of OGS Project will emit combustion products and use certain hazardous materials that could expose the general public and onsite workers to potential health effects. This section on air quality examines whether OGS will likely comply with applicable state and federal air quality laws, ordinances, regulations, and standards (LORS), whether it will likely result in significant air quality impacts, and whether the proposed mitigation measures will likely reduce potential impacts to insignificant levels.

We specifically evaluate air quality impacts under the CEQA Guidelines, which identify significance criteria to determine whether a project will: (1) conflict with or obstruct implementation of the applicable air quality plan; (2) violate any air quality standard or contribute substantially to an existing violation; (3) result in a cumulatively considerable net increase of any criteria pollutant that is already in nonattainment; (4) expose sensitive receptors to substantial pollutant concentrations; or (5) create objectionable odors affecting a substantial number of people. (Cal Code Regs., tit. 14, § 15000 et seq., Appen. G.) The Guidelines note that the significance criteria established by the applicable Air District may be applied in a significance determination under CEQA review.

The applicable LORS are identified in **Air Quality Table 1** below. The evidence examines the project's compliance with the LORS.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	U.S. Environmental Protection Agency
Federal Clean Air Act Amendments of 1990 (CAAA), Title 40 Code of Federal Regulations (CFR) Part 50	National Ambient Air Quality Standards (NAAQS).
Clean Air Act (CAA) § 160-169A and implementing regulations, Title 42 United State Code (USC) §7470-7491, 40 CFR 51 & 52 (Prevention of Significant Deterioration Program)	Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of pollutants that occur at ambient concentrations attaining the NAAQS. A PSD permit would not be required for OGS because it would be subject to federally-enforceable operating limitations to emit less than 100 tons per year of NO_2 and CO (BAAQMD 2011a). The BAAQMD implements the PSD program for U.S. EPA within the San Francisco Bay Area.

Applicable Law	Description
CAA §171-193, 42 USC §7501 et seq., 40 CFR 51 Appendix S (New Source Review)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. Federal NSR applies to sources of designated nonattainment pollutants. This requirement is addressed through compliance with BAAQMD Regulation 2 Rule 1.
40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Requires monitoring of the natural gas fuel source for the proposed auxiliary boiler.
40 CFR 60, Subpart IIII	New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Requires the diesel fire water pump engine to achieve U.S. EPA Tier 3 emission standards.
40 CFR 60, Subpart KKKK	New Source Performance Standard (NSPS) for Stationary Combustion Turbines. Requires each proposed combustion turbine to achieve 15 parts per million (ppm) NOx or 0.43 pounds NOx per megawatt-hour (lb/MWh), achieve fuel sulfur standards, and provide reporting.
CAA §401 (Title IV), 42 USC §7651, 40 CFR 72 (Acid Rain Program)	Requires reductions in NOx and SO_2 emissions for electrical generating units greater than 25 MW, implemented through the Title V Federal Operating Permit program. This program is within the jurisdiction of the BAAQMD with U.S. EPA oversight [BAAQMD Regulation 2, Rule 7].
CAA §501 (Title V), 42 USC §7661, 40 CFR 70 (Federal Operating Permits Program)	Establishes comprehensive federal operating permit program for major stationary sources. Title V permit application required within one year following start of operation. This program is within the jurisdiction of the BAAQMD with U.S. EPA oversight [BAAQMD Regulation 2, Rule 6]
State	California Air Resources Board and Energy Commission
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.
H&SC §40910-40930	Permitting of source needs to be consistent with approved clean air plan. The BAAQMD New Source Review program is consistent with regional air quality management plans.
California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (Memorandum of Understanding)	Requires that Energy Commission decision on AFC include requirements to assure protection of environmental quality consistent with Air Resources Board (ARB) programs.
Airborne Toxic Control Measure for Idling (ATCM, 13 CCR §2485)	ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling – Generally prohibits idling longer than five minutes for diesel-fueled commercial motor vehicles.

Applicable Law	Description
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM, 17 CCR §93115.6)	ATCM for Stationary Compression Ignition (CI) Engines. Establishes operating requirements and emission standards for emergency standby diesel-fueled CI engines [17 CCR 93115.6]. The emission standard is 0.15 g/bhp-hr diesel particulate matter for emergency engines used fewer than 50 hours per year for maintenance and engine testing.
Local	Bay Area Air Quality Management District (BAAQMD)
BAAQMD Regulation 1 – General	Limits releases of air contaminants to not "cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public." Prohibits contaminants that may endanger "the comfort, repose, health or safety of any such persons or the public, or cause injury or damage to business or property."
BAAQMD Regulation 2, Rule 1 – Permits	General Requirements – Specifies requirements for issuance or denial of permits, exemptions, and appeals against BAAQMD decisions. An Authority to Construct (ATC) is required for any non-exempt source. Natural gas-fired heaters with a heat input rate of less than 10 million Btu per hour are exempt, and stationary internal combustion engines and gas-fired combustion turbines with an output rating of less than 50 horsepower (hp) are exempt.
BAAQMD Regulation 2, Rule 2	New Source Review – Requires preconstruction review including Best Available Control Technology (BACT) for sources with the potential to emit more than 10 pounds per day (NOx, POC, PM10, CO, or SO_2). Requires surrendering offsets for facilities with the potential to emit more than 35 tons per year of NOx or POC, or 100 tons per year of PM10 or SOx.
BAAQMD Regulation 2, Rule 3	Permits – Power Plants – Requires Preliminary Determination of Compliance (PDOC) and Final Determination of Compliance (FDOC) by the BAAQMD Air Pollution Control Officer with public notice and public comment prior to ATC. The BAAQMD would issue the ATC after the Energy Commission certifies the project.
BAAQMD Regulation 2, Rule 5	NSR of Toxic Air Contaminants – Requires preconstruction review for new and modified sources of toxic air contaminants. Contains project health risk limits and requirements for Toxics BACT. See Public Health.
BAAQMD Regulation 2, Rule 6	Major Facility Review – Requires an application be submitted for the federal operating permit within 12 months after commencing operation, as specified by Title V federal Clean Air Act.
BAAQMD Regulation 2, Rule 7	Acid Rain – Requires monitoring, recordkeeping, and holding of allowances for pollutants that contribute to the formation of acid rain, as specified by Title IV of the federal Clean Air Act.

Applicable Law	Description
BAAQMD Regulation 6	Particulate Matter – Limits particulate matter and visible emissions to less than 20% opacity. Prohibits emissions from any activity for more than 3 minutes in any one hour that result in visible emissions as dark or darker than Number 1 on the Ringlemann Chart.
BAAQMD Regulation 7	Odorous Substances – Prohibits the discharge of any odorous substances which remain odorous at the property line after dilution with four parts of odor-free air. Limits the emissions of ammonia to no more than 5,000 parts per million (ppm).
BAAQMD Regulation 8	Organic Compounds – Requires use of architectural coatings and solvents meeting POC limits and compliant coatings. Emissions from solvent use must not exceed 5 tons annually.
BAAQMD Regulation 8, Rule 40	Aeration of Contaminated Soil and Removal of Underground Storage Tanks – Prohibits aeration of soil contaminated with organic chemical or petroleum chemical spills except through a control device that is at least 90% effective. However, no remediation activities are currently proposed in conjunction with preparing the site for the OGS. See Public Health.
BAAQMD Regulation 9, Rule 1	Sulfur Dioxide – Prohibits emissions causing SO2 ground level concentrations exceeding 0.5 ppm averaged continuously for three minutes or 0.25 ppm over 60 minutes, consistent with the California Ambient Air Quality Standard.
BAAQMD Regulation 9, Rule 7	Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters – Specifies emission limits of 9 ppm NOx and 400 ppm CO, applicable to the auxiliary boiler.
BAAQMD Regulation 9, Rule 7	Stationary Gas Turbines – Specifies emission limits of 5 ppmvd NOx or 0.15 pounds NOx per megawatt-hour (lb/MWh), applicable to the proposed combustion turbines.

The evidence on this topic was undisputed. (3/15/11 RT 67-77, 78-94, Exs. 1 § 5.1, Appendix 5.1, 2 [Responses 4 – 8], 3, 7, 10 [Responses 1 -23]; 12; 15; 16; 22; 25; 26; 32; 35; 36; 37; 39; 45; 46; 49; 50; 55; 57; 300; § 4.1; 301; 406.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Setting and Meteorology

The project site is located in the City of Oakley, Contra Costa County, California. The project is within the Carquinez Strait region of the San Francisco Bay Area. The region has hot dry summers and mild winters, with precipitation occurring almost exclusively in the winter. The annual rainfall at the project site is around

13 inches and most precipitation (80 percent) occurs from November through March. (Ex. 300, p. 4.1-6.)

Wind speeds are generally higher in spring, summer, and autumn and are typically westerly. Wind directions are more variable during the winter months. (*Id*.)

2. Project Features

The OGS Project includes the following new stationary sources of emissions:

- Two General Electric (GE) 7FA natural gas-fired combustion turbine generators (CTG) with dry low-NOx (DLN) combustion and evaporative inlet air cooling with a nominal capacity of 213 MW and a heat input capacity of up to 2,150 MMBtu/hr for each gas turbine (higher heating value), in a combined cycle configuration.
- Two non-fired Heat Recovery Steam Generators (HRSGs) capable of 643,000 lb/hr nominal steam production rating, coupled to a single GE D11 condensing steam turbine generator capable with a nominal rating of 218 MW.
- Auxiliary boiler rated at 50.6 MMBtu/hr, fired on pipeline quality natural gas and estimated steam production of 34,000 lb/hr.
- Three cell evaporative cooler for inlet air cooling with water circulation rate of 5,880 gallons/minute, expected total dissolved solids (TDS) of 1,500 parts per million (ppm), and mist eliminator efficiency of 0.003 percent.
- Fire water pump engine fueled on ultra low sulfur diesel, rated at 400 brake horse-power (bhp) and certified to achieve ARB Tier 3 emission standards.

The project is expected to operate as a base load power plant up to approximately 8,463 hours per year (annual capacity factor of 97percent), with an expected actual capacity factor at 60 to 80 percent.

3. Bay Area Air Quality Management District Jurisdiction

The project is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD or District). BAAQMD released its Final Determination of Compliance (FDOC) in January 2011 stating that the project is expected to comply with applicable District rules, which incorporate state and federal requirements. The FDOC discusses how the project will comply with applicable federal, state, and local LORS. (Ex. 301.)

The BAAQMD's permit conditions for the project are specified in the FDOC and incorporated into this Decision as as Conditions of Certification **AQ-1** through **AQ-50**.

4. Ambient Air Quality Standards

The federal Clean Air Act [1] and the California Clean Air Act[2] both impose ambient air quality standards (AAQS) for the maximum allowable concentrations of "criteria air pollutants." Criteria air pollutants are defined as air contaminants for which the state and federal governments have established an ambient air quality standard to protect public health. The criteria air pollutants analyzed in this Decision include nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), inhalable particulate matter (PM10), and fine particulate matter (PM2.5).

The primary health effects of the criteria air pollutants on humans are as follows:

- Ozone (O_3): Aggravation of respiratory and cardiovascular diseases; impairment of cardiopulmonary function; and eye irritation.
- PM10 and PM2.5: Increased risk of chronic respiratory disease such as bronchitis, emphysema, and asthma; reduced lung functions, increased chough and chest discomfort. Particulates may lodge in or irritate the lungs.
- CO: Impairment of oxygen transport in the bloodstream; aggravation of cardio-vascular disease; impairment of central nervous system function, fatigue, headache, confusion, and so on.
- NO_2: Risk of acute and chronic respiratory disease.
- SO_2: Aggravation of respiratory diseases, reduced lung function, and irritation of eyes. (Ex. 300, pp. 4.1-6 - 4.1-7.)

In view of these potential health effects, ambient air quality standards are designed to protect public welfare, with particular focus on individuals susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by disease or illness, and people engaged in strenuous work or exercise.

[1] Title 42, United States Code, section 7401 et seq.

[2] California Health and Safety Code, section 40910 et seq.

The California AAQS established by the California Air Resources Board (CARB) are typically more protective and therefore more stringent than the National AAQS (NAAQS) established by the United States Environmental Protection Agency (U.S. EPA). **Air Quality Table 2** below identifies the current federal and state ambient air quality standards. (Ex. 300, pp. 4.1-7 – 4.1-8.)

Air Quality Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m^3)	None
	8 Hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)[a]
Respirable Particulate Matter (PM10)	24 Hour	50 μg/m^3	150 μg/m^3
	Annual	20 μg/m^3	None
Fine Particulate Matter (PM2.5)	24 Hour	None	35 μg/m^3
	Annual	12 μg/m^3	15 μg/m^3
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 μg/m^3)	0.100 ppm[b]
	Annual	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 μg/m^3)	0.075 ppm (196 μg/m^3)[c]
	24 Hour	0.04 ppm (105 μg/m^3)	None[d]

Source: ARB (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf), September 2010.
http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed November 2010.

Notes:
a. On January 6, 2010, the U.S. EPA proposed revising the federal 8-hour ozone standard to a range of 0.06 to 0.07 ppm.
b. The 1-hour NO_2 NAAQS is based on the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations.
c. On June 2, 2010, the U.S. EPA established a new federal 1-hour SO_2 standard.
d. On August 23, 2010, the U.S. EPA revoked both the existing Federal 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.030 ppm.

The federal and state AAQS consist of two parts: an allowable pollutant concentration and an averaging time over which the concentration is measured. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (one hour, for instance), or to a relatively lower average concentration over a longer period (8 hours, 24 hours, or 1 month). The standards are read as a concentration in parts per million (ppm) or as a weighted mass of material per

unit volume of air, in milligrams (mg or 10^{-3} g) or micrograms (µg or 10^{-6} g) of pollutant in a cubic meter (m^3) of ambient air, drawn over the applicable averaging period. (Ex. 300, p. 4.1-7.)

Nitrogen oxides (NO_X, consisting of nitric oxide [NO] and NO_2), sulfur oxides (SOx), and volatile organic compounds (VOC) are considered precursor organic compounds to criteria pollutants (POC) and are also discussed in this evaluation.

5. Existing Ambient Air Quality

Air Quality Table 3 below summarizes the federal and state attainment status of criteria pollutants in the Bay Area Air Quality Management District.

Air Quality Table 3
Attainment Status of Bay Area Air Quality Management District

Pollutants	State Classification	Federal Classification
Ozone (1-hr)	Nonattainment	No Federal Standard
Ozone (8-hr)	Nonattainment	Nonattainment (Marginal)
PM10	Nonattainment	Unclassified
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

Source: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed July 2010.

The evidence describes in detail the composition and significance of each of the attainment and nonattainment criteria pollutants. We note that the current CAAQS for NO_2 became effective in early 2008, and the U.S. EPA adopted a new 1-hour standard of 0.100 ppm (188 µg/m^3) in early 2010. Although attainment designations have not yet been established for the new, more stringent standards, the evidence indicates that the San Francisco Bay Area air basin (including areas near the project site) would attain all current state and federal NO_2 standards. (Exs. 1, pp. 5.1-20 – 5.1-24, 300, pp. 4.1-9 – 4.1-17.)

6. Impacts and Mitigation

Our environmental impacts analysis is guided by the above-described CEQA significance criteria and Staff's air quality characterizations and baselines. According to Staff, all project emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, PM10, PM2.5, SOx, and NH_3) are significant and must be mitigated. (Ex. 300, p. 4.1-25.) We agree.

In addition, Staff established a baseline for evaluating the Applicant's and Staff's respective modeling results and analyses. Staff explained that it calculated the background values using the highest criteria pollutant concentrations. (Ex. 300, pp. 4.1-17 - 4.1-18.) Staff's recommended background concentrations are shown below in **Air Quality Table 4**.[3]

Air Quality Table 4
Staff-Recommended Background Concentrations (μg/m^3)

Pollutant	Averaging Time	Background	Limiting Standard	Percent of Standard
PM10	24 hour	**78.2**	50	**156**
	Annual	**23.6**	20	**118**
PM2.5	24 hour	**60.3**	35	**172**
	Annual	9.3	12	78
CO	1 hour	6,440	23,000	28
	8 hour	1,667	10,000	17
NO_2	1 hour	105.7	339	31
	1 hour Federal	83.0	188	44
	Annual	20.9	57	37
SO_2	1 hour	123.1	655	19
	1 hour Federal	122.8	196	63
	24 hour	21	105	20

Source: ARB 2010 and EPA 2010.

Note that an exceedance is not necessarily a violation of the standard, and that only persistent exceedances lead to designation of an area as nonattainment. Federal 1-hour NO_2 value is preliminarily provided by the California Air Resources Board. Federal 1-hour SO_2 data represents the maximum concentrations monitored using federal methods, not adjusted for statistical basis of 2010 federal standard.

[3] Staff states that attainment with limiting standards for PM2.5 and NO_2 is based on a statistical form and multi-year averaging, which, if applied to the recommended background concentrations, would result in lower concentrations. (Ex. 300, p. 4.1-17.)

The evidence further establishes that the Applicant performed the air dispersion modeling analysis using the U.S. EPA Guideline on Air Quality Models and the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (version 09292). For impacts during inversion breakup fumigation and shoreline fumigation conditions, the U.S. EPA SCREEN3 model was used. Dispersion models allow for complex, repeated calculations that consider emission in the context of various ambient meteorological conditions, local terrain, and nearby structures that affect airflow. The Contra Costa Power Plant and Oakland International Airport monitoring stations provided meteorological input data.

Staff independently conducted air dispersion modeling for NO_2 impacts using Plume Volume Molar Ratio Method and the Applicant used the Ozone Limiting Method in AERMOD for modeling NO_2 impacts. Both methods are appropriate for the OGS Project. (Exs. 1, § 5.1.5; 300, pp. 4.1-25 - 4.1-26.)

a. Construction Impacts and Mitigation

The temporary construction phase will occur over a 33-month period. Onsite construction activities include site preparation, foundation work, construction of installation of major equipment and structures. Fugitive dust emissions will result from site preparation, grading and excavation activities, vehicle travel on paved and unpaved roads, and soil erosion. Combustion-related emissions will result from sources such as diesel construction equipment and exhaust from vehicles and machines. (Ex. 300, p. 4.1-19, see also FSA Tables 9 and 10.)

The modeling analysis results for construction-phase maximum impacts are shown below in **Air Quality Table 5**.[4]

[4] The figures in the "Total Impact" column of the table represent the sum of the existing background conditions (as calculated by Staff) and the maximum impacts predicted by the modeling analysis. (Ex. 300, p. 4.1-27.) The values shown in bold type are equal to or exceed the corresponding air quality standard.

Air Quality Table 5
OGS, Construction-Phase Maximum Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	**122.0**	**78.2**	**200.2**	50	**400**
	Annual	2.3	**23.6**	**25.9**	20	**130**
PM2.5	24 hour	25.8	**60.3**	**86.1**	35	**246**
	Annual	0.6	9.3	9.9	12	83
CO	1 hour	48	6,440	6,488	23,000	28
	8 hour	18	1,667	1,685	10,000	17
NO_2 [a]	1 hour	89.9	105.7	195.6	188	58
	Annual	19.5	20.9	40.4	57	71
SO_2	1 hour	0.11	123.1	123.2	655	19
	24 hour	0.02	21	21.0	105	20

Source: Appendix 5.1B Table 5.1B-5 (CH2MHILL 2010d), with independent staff assessment for PM10/PM2.5.

Note: a. The maximum 1-hour NO_2 concentration is based on AERMOD OLM output, and the ambient ratio method (ARM) is applied for annual NO_2, using national default 0.75 ratio.

The direct impacts of NO_2, in conjunction with worst-case background conditions, would not create a new violation of the applicable NO_2 ambient air quality standards.[5] Similarly, the direct impacts of CO and SO_2 would not be significant because construction of the project would neither cause nor contribute to a violation of these standards.

However, as demonstrated by the table above and the evidence, particulate matter emissions will contribute to existing violations of PM10 and PM2.5 ambient air quality standards and therefore cause a significant impact. The evidence also indicates that significant secondary impacts will occur for PM10, PM2.5, and ozone because construction-phase emissions of particulate matter precursors (including SOx) and ozone precursors (NOx and VOC) will contribute to existing violations of these standards. (Ex. 300, p. 4.1-27.)

[5] We note that the federal NO_2 standard was not modeled for construction-related impacts because the standard is based upon a 3-year average, and construction is expected to be completed within three years.

The evidence also shows that the maximum modeled 24-hour PM10 dust impacts will occur at the northeastern site boundary. The highest diesel exhaust combustion-related impact for both 24-hour PM10 and 24-hour PM2.5 will occur at the southwestern site boundary. In addition, the construction-phase modeled impact would be greater than 50 µg/m3 within a 1/4 mile radius (1,320 feet) of the site, with the highest concentrations being north and east of the project site. (*Id.*)

The nearest residential receptors are located approximately 900 feet southwest of the site, 2,350 feet east of the site, and approximately 3,280 feet northeast of the project boundary (near Big Break Marina). In the vicinity of the nearest residential receptors located approximately 900 feet southwest of the site, the modeled construction impact for PM10 would be about 40 percent (20 µg/m3) of the limiting standard (50 µg/m3). In the vicinity of Big Break Marina and Big Break Road, the modeled construction impact for PM10 would be about 10 percent (5 µg/m3) of the limiting standard (50 µg/m3). (*Id.*)

Both the Applicant and Staff proposed mitigation measures to reduce the construction-related impacts to less than significant levels. In summary, the Applicant proposes to reduce construction-related emissions of PM10 and PM2.5, particulate matter precursors (including SO_X) and ozone precursors (including NO_X and VOC) by implementing applicable BAAQMD requirements limiting visible emissions and nuisance. The Applicant also proposes to implement controls for construction activities that require the use of water or chemical dust suppression to minimize PM10 emissions and prevent visible particulate emissions, consistent with measures adopted in similar, prior Energy Commission decisions. (Ex. 300, p. 4.1-28.)

In addition to the project implementing the Applicant's measures, Staff recommends the project's use of oxidizing soot filters as a viable emissions control technology for all heavy diesel-powered construction equipment that does not use an ARB-certified low emission diesel engine. Staff also proposes that the project owner provide an Air Quality Construction Mitigation Plan - prior to the start of construction - that identifies specific mitigation measures to limit air quality impacts. Staff incorporated its recommendations and the Applicant's proposed mitigation measures into Staff-proposed Conditions of Certification **AQ-SC1** through **AQ-SC5**. (Ex. 300, pp. 4.1-28, 4.1-43 - 4.1-48.) We find that implementation of these conditions will mitigate impacts to less than significant levels.

Conditions **AQ-SC1** and **AQ-SC2** require the project owner to prepare and implement an Air Quality Construction Mitigation Plan (AQCMP) and to employ an Air Quality Construction Mitigation Manager to monitor compliance with the AQCMP. Condition **AQ-SC3** includes fugitive dust control requirements, which include frequently watering unpaved roads in disturbed areas, maintaining specified speed limits, using wind erosion control techniques. Condition **AQ-SC4** limits potential off-site impacts from visible dust plumes. Condition **AQ-SC5** requires the project owner to reduce diesel-fueled construction equipment emissions by using EPA/ARB Tier 3 engine compliant equipment for engines between 50 and under 750 horsepower (hp) and Tier 2 emission standards for engines over 750 hp. Condition **AQ-SC5** also includes equipment idle time restrictions and engine maintenance provisions.

b. Routine Operation Impacts and Mitigation

The evidence evaluates and summarizes the maximum (worst-case) criteria pollutants emissions for the project's normal and routine operation and details the maximum hourly emissions, maximum daily emissions, and maximum annual emissions. Data for annual off-site emission are also provided. (Ex. 300, p. 4.1-22 – 4.1-25 [see also FSA Tables 12 – 15].)

The Applicant performed a refined dispersion modeling analysis to identify off-site criteria pollutant impacts. The worst-case one-hour impacts, as presented below in **Air Quality Table 6**, include startup, transient, or combustor tuning activities.[6]

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[6] The figures in the "Total Impact" column of the Table represent the sum of the existing background conditions (as calculated by Staff) and the maximum impacts predicted by the modeling analysis for project activity. The values shown in bold type are equal to or exceed the corresponding air quality standard.

Air Quality Table 6
OGS, Routine Operation Maximum Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	4.2	**78.2**	**82.4**	50	**165**
	Annual	0.5	**23.6**	**24.1**	20	**120**
PM2.5	24 hour	4.2	**60.3**	**64.5**	35	**184**
	Annual	0.5	9.3	9.8	12	81
CO	1 hour	763.0	6,440	7,203.0	23,000	31
	8 hour	95.0	1,667	1,762.0	10,000	18
NO_2 [a]	1 hr State	154.7	105.7	260.3	339	77
	1 hr Federal	--paired--	--paired--	136.9	188	73
	Annual	0.4	20.9	21.3	57	37
SO_2	1 hr State	10.1	123.1	133.2	655	20
	1 hr Federal	10.1	122.8	132.9	196	68
	24 hour	2.00	21	23.0	105	22

Source: AFC Supplement Table 5.1-19 (CH2MHILL2010d).

Note: a. The maximum 1-hour NO_2 concentration is based on staff AERMOD PVMRM output, and the ambient ratio method (ARM) is applied for annual NO_2, using national default 0.75 ratio. NO_2 impacts do not show the effects of occasional emergency fire pump engine testing. For a 30-minute test of the fire pump engine, maximum impacts caused by the fire pump engine would be approximately: 86 µg/m^3 1-hour NO_2 without background, at the OGS fence-line.

As shown, project operation will cause no new violations of NO_2, CO, SO_2, ambient air quality standards nor will it contribute to existing violations. As a result, direct NO_2, CO, and SO_2 impacts are less than significant. (Ex. 300, pp. 4.1-28 – 4.1-30.)

In contrast, operation emissions will contribute to the existing violations of PM10 and PM2.5 standards and result in significant impacts. Significant secondary emissions will also occur for PM10, PM2.5, and ozone because operational emissions of particulate matter precursors (including SO_x) and ozone precursors (NO_X and VOC) will contribute to existing violations of these standards.

The evidence further shows that the maximum 24-hour PM10/PM2.5 impact occurs about 1,600 feet (500 meters) southeast of the OGS combustion turbines, in the largely undeveloped area north of Highway 4 and west of Big Break Road. Staff suggests that because of the high exhaust temperature and velocity, project impacts would be about one-half the maximum level (or less than 2.2 µg/m3) for the nearest residences at 900 feet (275 meters) southwest of the site and 2,350 feet (720 meters) east of the site. For all other nearby residences, including those

approximately 3,280 feet (1,000 meters) northeast of the project boundary near Big Break Marina and those east of Big Break Road, the evidence shows that highest modeled impacts of PM10/PM2.5 would be less than four percent (2 µg/m3) of the limiting standard (50 µg/m3) and less than three percent of the background concentration. The highest NO_2 impacts occur during startup of the two CTGs and are not substantially influenced by weekly 30-minute testing of the fire water pump engine because they tend to not impact the same downwind locations. (Ex. 300, p. 4.1-29.)

The project will mitigate operation impacts to less than significant levels by implementing emission controls with the Best Available Control Technology, providing emission reduction credits (ERCs) to offset emissions, and making a monetary contribution to the Bay Area Clean Air Foundation administered by BAAQMD. Regarding emission controls, the combustion turbines will include a dry low-NO_X burner system, the SCR to reduce NO_X, and the oxidation catalyst system to reduce CO and VOC. (Ex. 300, pp. 4.1-32 - 4.1-33.)

OGS has option contracts that would enable it to obtain ERCs necessary to comply with BAAQMD offset requirements summarized in **Air Quality Table 7** below. The table also presents CEQA offset requirements as previously applied by the Energy Commission and OGS's actual and potential offset holdings. (Ex. 300, p. 4.1-34.)

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Air Quality Table 7
OGS, BAAQMD Offset Requirements and OGS Offset Holdings (tpy)

Source	NOx	VOC	PM10/ PM2.5	CO	SOx
Total Two CTGs Maximum Annual	98.626	29.274	63.715	98.000	12.524
Auxiliary Boiler	0.099	0.217	0.060	0.803	0.024
Diesel Fire Water Pump Engine	0.057	0.003	0.003	0.015	0.0001
Evaporative Inlet Air Cooler	--	--	0.099	--	--
Oil Water Separator	--	0.105	--	--	--
OGS Potential to Emit	**98.78**	**29.60**	**63.88**	**98.82**	**12.55**
Offset Requirements					
BAAQMD Offset Requirements	113.60 [a]	29.49 [b]	0 [c]	0 [d]	0 [e]
OGS Offset Holdings Certificate, Site of Reduction					
#1241 New United Motor Manufacturing, Inc., Fremont	---	20.79	---	---	---
#1242 New United Motor Manufacturing, Inc., Fremont	---	18.47	---	---	---
#1245, New United Motor Manufacturing, Inc., Fremont	---	103.84	---	---	---
Separate Mitigation Agreement with BAAQMD per **AQ-SC8**	0	0	63.88	0	12.55
OGS Mitigation Total	**---**	**143.1**	**63.88.**	**0**	**12.55**
Staff Recommended Mitigation for CEQA Only	**98.78**	**29.60**	**63.88**	**---**	**12.55**
Fully Offset?	**Yes**	**Yes**	**Yes**	**---**	**Yes**

Source: Independent staff assessment, FDOC Appendix C, Response to II.1 (BAAQMD 2011a).

Notes:

a. BAAQMD offset requirements for NOx for OGS include an offset ratio of 1.15-to-1. In BAAQMD, VOC (POC) offsets may be used to offset emission increases of NOx.

b. BAAQMD offset requirements for VOC (POC) for OGS are at a ratio of 1-to-1. The fire water pump engine and oil water separator are exempt from BAAQMD offset requirements, but it would be offset with staff recommended mitigation.

c. Offsets are not required by BAAQMD for PM10 or PM2.5 since OGS would not exceed 100 tons per year.

d. Offset are not required by BAAQMD for CO since the area is designated as an area that attains the CO ambient air quality standards and OGS would not be subject to PSD review for CO. This Staff Assessment demonstrates that OGS would not cause or contribute to a violation of the CO ambient air quality standards.

e. Offsets are not required by BAAQMD for SO_2 since OGS would not exceed 100 tons per year.

BAAQMD Rule 2-2-302 establishes an offset ratio for OGS of 1.15 to 1 for NO_X. BAAQMD allows VOC offsets to be used to offset emission increases of NO_X. BAAQMD offset requirements for VOC for OGS are at a ratio of one–to-one. (Ex. 300, p. 4.1-34.) The District's offset ratios are in accord with Energy Commission Staff's opinion recognizing the necessity of reducing emission reductions for all nonattainment pollutants and their precursors at a minimum overall one-to-one ratio. (Ex. 300, pp. 4.1-33 - 4.1-34, 4.1-36.)

As shown by **Air Quality Table 7** above, BAAQMD does not require offsets for particulate matter or SO_X. However, as discussed above, we find that operation emissions will contribute to the existing violations of PM10 and PM2.5 standards and result in significant impacts requiring mitigation. Significant secondary emissions will also occur for PM10, PM2.5, and ozone because operational emissions of particulate matter precursors (including SO_X) and ozone precursors (NO_X and VOC) will contribute to existing violations of these standards. (Ex. 300, p. 4.1-30.)

Implementation of Conditions of Certification **AQ-SC7** and **AQ-SC8** will ensure the mitigation of impacts of ozone, PM10, and PM2.5 precursors. **AQ-SC-7** requires the project owner to provide ERCs in the form required by BAAQMD and in quantities of at least 98.78 tons per year (tpy) of NO_X and 29.60 tpy of VOC emissions. **AQ-SC8** requires the project owner to mitigate 63.88 tpy of PM10/PM2.5 and 12.55 tpy of SO_X emissions by entering into an agreement with the Bay Area Clean Air Foundation by which the project owner will contribute $32,750 per tpy of PM10/PM2.5 and SO_X emissions to be mitigated to be used for emission reduction projects in the Oakley and the surrounding community.

In addition, Staff has proposed measures to ensure that OGS's license is amended as necessary to incorporate future changes to the air quality permits and to ensure ongoing compliance during commissioning and routine operation through quarterly reports. Conditions of Certification **AQ-SC6, AQ-SC7**, and **AQ-SC9** (which we have adopted) incorporate these requirements.

The evidence also shows that project operation will result in ammonia emissions. Although ammonia (NH_3) is not a criteria pollutant, unmitigated emissions of ammonia could result in higher PM10 and PM2.5 levels in the region. The BAAQMD is evaluating the relationship of the ammonia emission inventory to ambient particulate levels. This evaluation suggests that restricting ammonia emissions could be a useful part of a regional strategy to reduce particulate matter formation. The evidence also indicates that restricting ammonia emissions from new sources will likely reduce potential deposition of nitrogen-containing compounds on area soils and vegetation. The project's compliance with FDOC condition **AQ-15** (incorporated in the Conditions of Certification below) will ensure that OGS ammonia emission concentrations at each identified exhaust point do not exceed 5 ppmv on a dry basis, corrected to 15 percent O_2, averaged over any rolling 3-hour period. (Exs. 301, p. 31, Appendix C, 300, p. 4.1-30.)

c. Fumigation Impacts and Mitigation

The evidence includes an evaluation of fumigation impacts. Shoreline fumigation occurs when dense, cool air over water moves onshore and falls, displacing warmer, lighter air over land. Thermal inversion breakup fumigation occurs when a stable layer of air lies a short distance above the release point of a plume and unstable air lies below.

The analysis of fumigation impacts considers the maximum allowable hourly emissions from the combination of both CTGs simultaneously under any mode of routine operation using the SCREEN3 Model (version 96043). The maximum impacts under shoreline fumigation conditions would occur during startups at approximately 2.2 km from the project site, and the maximum impacts under inversion breakup fumigation conditions would occur more than 16 km away. These short-term fumigation impacts for NO_2 shown below in **Air Quality Table 8** below will not create any new violation of the limiting standard. Thus, no mitigation is required. (Ex. 300, p. 4.2-31.)

Air Quality Table 8
OGS, Maximum Impacts During Shoreline Fumigation (μg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
CO	1 hour	700	6,440	7,140	23,000	31
NO_2	1 hour	195.3	105.7	301.0	339	89
SO_2	1 hour	14.6	123.1	137.7	655	21

Source: AFC Supplement Table 5.1-23 and 5.1-24 (CH2MHILL2010d).

d. Commissioning-Phase Impacts and Mitigation

New electrical generation facilities must go through initial commissioning phases before they can become commercially available. Initial firing during commissioning causes greater emissions than those that occur during normal operations. This is due to combustor tuning, conducting numerous startups and shutdowns, operating under low loads, and testing before emission control systems are functioning or fine-tuned for optimum performance. (Ex. 300, pp. 4.1-20 – 4.1-21.)

Commissioning impacts would occur over short-term periods within a window of 90 days allowed for completing the commissioning period. (**Air Quality Table 9** below shows that under this condition the commissioning-phase impacts of CO and NO_2 would be somewhat higher than those during routine operations.

However, these impacts would not create any new violation of the limiting standards, and they would be limited to only the 90-day window before commercial operation of each CTG. Ex. 300, pp. 4.1-31- 4.1-32, see also Conditions of Certification **AQ-7**, **AQ-25**, and **AQ-26**.)

Air Quality Table 9
OGS, Commissioning-Phase Maximum Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
CO	1 hour	1,136.0	6,440	7,576	23,000	33
	8 hour	477.0	1,667	2,144	10,000	21
NO_2 [a]	1 hour	198.5	105.7	304.2	339	90

Source: AFC Supplement Table 5.1-19 (CH2MHILL2010d).

Note: a. The maximum 1-hour NO_2 concentration is based on AERMOD OLM output.

Commissioning-phase impacts to particulate matter and ozone concentrations will be adequately addresses and mitigated to less than significant levels with implementation of the Conditions of Certification below.

7. Visibility Impacts

A visibility analysis of the project's gaseous emissions is not required because the OGS Project would not qualify as a new major stationary source under the federal Prevention of Significant Deterioration (PSD) permitting program. (Ex. 300, p. 4.1-32.)

8. Cumulative Impacts

Cumulative impacts may result from the project's incremental effect, together with other closely related past, present and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Res. Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15130, 15355.)

The air quality analysis focuses on criteria air pollutants, which have impacts that are typically cumulative by nature. Although a project by itself would rarely cause a violation of a federal or state criteria pollutant standard, a new source of pollution may contribute to violations of criteria pollutant standards in the context of existing background pollutant sources or foreseeable future projects. Air districts attempt to reduce background criteria pollutant levels by adopting attainment plans, which are multi-faceted programmatic approaches to

attainment. Attainment plans typically include new source review requirements that provide offsets and use BACT, combined with more stringent emissions controls on existing sources. (Ex. 300, pp. 4.1-36 - 4.1-37.)

The evidence includes analysis of the project's potential cumulative air quality impacts, including a description of the air quality background, a summary of BAAQMD's projections for criteria pollutants and its programmatic efforts to abate such pollution, and an analysis of the project's predicted localized cumulative impacts.

As explained above, BAAQMD is currently designated as attainment for the federal PM10 standard but nonattainment for the federal PM2.5 standard. The California Clean Air Act does not require any local air district to provide a plan for attaining state PM10 or PM2.5 standards. As a result, BAAQMD has no adopted implementation plan for particulate matter but, by December 2012 BAAQMD must submit to ARB and the U.S. EPA a separate plan demonstrating how the region will comply with the federal PM2.5 standard by no later than 2019. (Ex. 300, p. 4.1-38.)

In addition, in response to state legislation (SB 656), the BAAQMD identified the most readily available, feasible, and cost-effective control measures that could be employed to reduce PM10 and PM2.5 precursor emissions and concentrations. On November 9, 2005, the District issued a final staff report called the Particulate Matter Implementation Schedule. The proposed measures included reducing NOx and POC emissions from internal combustion engines and providing additional outreach and educational resources. Compliance with BAAQMD rules and regulations and implementing mitigation recommended by staff for offsetting PM10/PM2.5 and SOx emissions (**AQ-SC8**) ensures that project PM10/PM2.5 and precursor impacts will be mitigated and consistent with the forecasted BAAQMD trends. (Ex. 300, p. 4.1-38.)

In view of this background information, the Applicant and Staff evaluated possible impacts from neighboring electric generating facilities and other reasonably foreseeable local projects in combination with air quality impacts of the OGS. Reasonably foreseeable future projects in the area are those that are either currently under construction or in the process of being approved by a local air district or municipality. Projects that have not yet entered the approval process do not normally qualify as "foreseeable" since the detailed information needed to conduct this analysis is not available. Sources that are presently operational are included in the background concentrations. Stationary source projects located up

to six miles from the proposed project site usually need to be included in the analysis. Background conditions take into account the effects of non-stationary (mobile and area) sources.

The evidence identifies the following present and proposed primary emissions sources, along with other existing major electric generating facilities of concern (although they are also included in the background concentrations):

- Contra Costa Power Plant, Antioch – Existing natural gas fired boilers 9 and 10 stacks: Units 6 and 7.
- Gateway Generating Station, Antioch – Existing power plant with two natural gas-fired combustion turbines paired with heat recovery steam generators.
- Marsh Landing Generating Station, Antioch – Future simple-cycle power plant with four combustion turbines and fuel gas heaters, approved in 2010.
- Pittsburg Power Plant, Pittsburg – Existing natural gas-fired boilers 5, 6, and 7.
- Willow Pass Generating Station, Pittsburg – Proposed power plant with two natural gas-fired combined cycle combustion turbines and one natural gas-fired fuel gas heater. This power plant is under review for possible approval at the Energy Commission.
- Delta Energy Center, Pittsburg – Existing power plant with three combined cycle combustion turbines.
- Los Medanos Energy Center, Pittsburg – Existing power plant with two combined cycle combustion turbines.
- GWF Wilbur Avenue East Power Plant, Antioch – Existing combustion turbines.
- Silgan Containers Manufacturing Corporation, Antioch – Proposed thermal oxidizer modification.
- Ameresco Keller Canyon LLC, Bay Point – Proposed two landfill gas-fired internal combustion engines and one waste gas flare.
- United Spiral Pipe LLC Manufacturing Plant, Pittsburg – Proposed plant welding, cleaning, miscellaneous particulate matter.
- Freedom High School, Oakley – Proposed diesel generator set.

The maximum modeled cumulative impacts are presented below in **Air Quality Table 10**, which reflects conservative estimates.

Air Quality Table 10
OGS, Ambient Air Quality Impacts from Cumulative Sources (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	**169.0**	**78.2**	**247.2**	50	**494**
	Annual	15.6	**23.6**	**39.2**	20	**196**
PM2.5	24 hour	**169.0**	**60.3**	**229.3**	35	**655**
	Annual	**15.6**	9.3	**24.9**	12	**208**
CO	1 hour	777.0	6,440	7,217	23,000	31
	8 hour	105.0	1,667	1,772	10,000	18
NO_2 [a]	1 hr State	170.2	105.7	275.9	339	81
	1 hr Federal	--paired--	--paired--	136.9	188	73
	Annual	3.9	20.9	24.8	57	43
SO_2	1 hr State	10.8	123.1	133.9	655	20
	1 hr Federal	10.8	122.8	133.6	196	68
	24 hour	2.3	21	23.3	105	22

Source: Supplemental Response to DR23 (CH2MHILL 2010w).

Note: a. The maximum 1-hour NO_2 concentration is based on staff AERMOD PVMRM output, and the ambient ratio method (ARM) is applied for annual NO_2, using national default 0.75 ratio. NO_2 impacts do not show the effects of occasional emergency fire pump engine testing. For a 30-minute test of the fire pump engine, maximum impacts caused by the fire pump engine would be approximately: 86 µg/m^3 1-hour NO_2, without background. The plume from the fire pump engine's exhaust tends to not impact the same locations as the main stack.

Compared with the impacts from the OGS Project alone, maximum cumulative impacts caused by the above-identified would be substantially higher for PM10 and PM2.5. This is attributable to one cumulative source (BAAQMD Facility #09029), a concrete batch plant, south of Wilbur Avenue and west of Highway 160, about 400 meters west of OGS. The areas impacted by the batch plant are generally confined to the elevated highway, within a radius of 660 feet (200 meters). In the areas of modeled violation for 24-hour PM10/PM2.5, the OGS would contribute less than 1 µg/m3, which would be less than the federal Significant Impact Level (SIL) for PM10 of 5 µg/m3, which we deem to be reasonable level for determining whether the contribution by OGS would be cumulatively considerable. With OGS's contribution to modeled concentrations being below 5 µg/m3 in the area of modeled exceedance, the local contribution made by OGS would not be cumulatively considerable. (Ex. 300, pp. 4.1-38 – 4.1-40.)

However, because OGS would contribute to existing violations of the PM10 and PM2.5 ambient air quality standards in the region, particulate matter emissions from OGS would be cumulatively considerable. Secondary impacts would also be

cumulatively considerable for PM10, PM2.5, and ozone because emissions of particulate matter precursors (including SOx) and ozone precursors (NOx and VOC) would contribute to existing violations of the PM10, PM2.5, and ozone standards. However, implementation of the Conditions of Certification would address the contribution caused by OGS to cumulative particulate matter and ozone impacts and reduce the impacts to less than significant levels.

Thus, we find that with implementation of the Conditions of Certification the project will not result in cumulatively considerable impacts to air quality.

9. Compliance with LORS

The project's emissions and air quality impacts must comply with various local, state, and federal LORS. As discussed above, the Applicant, Staff, and BAAQMD have evaluated the project's air quality impacts and determined that the project will comply with applicable LORS with implementation of the Conditions of Certification. **Air Quality Table 1** above, the foregoing evaluation and the Conditions of Certification describe how the project will comply with applicable federal, state, and District LORS. (See, e.g., Exs. 300, pp. 4.1-41-4.1-42, 301.)

10. Public and Agency Comments

As discussed in the **Public Health** section of this Decision, several oral and written comments were received from the public during and after the March 15, 2011, hearing relating to public health. (3/15/11 RT 29-32, 39-40, 146-147, 147-150, 158.) Some comments questioned whether the project will adversely affect community health by, for example, leading to higher asthma rates for children, higher respiratory failure rates for elders, reproductive health issues, and higher cancer rates. We addressed these concerns under **Public Health** "Agency and Public Comments." To the extent the comments more generally question whether potential OGS air quality impacts have been adequately evaluated, we find that the evidence of record and our discussion above extensively assess the potential public health impacts of criteria pollutants and their precursors. As discussed, the Applicant, Staff, and BAAQMD undertook independent analysis, modeling of predicted construction phase, commissioning, fumigation, and operation impacts.

Applicant and Staff submitted .worst-case modeling results establishing that The project would not cause new violations of any NO_2, CO, or SO_2 ambient air quality standards. Nor will it contribute to existing violations for these pollutants.

Therefore, the project's direct NO_2, CO, and SO_2 impacts are less than significant.

In contrast, the evidence shows that the project NO_X and VOC emissions would contribute to existing violations of state and federal ambient air quality standard. Compliance with Condition of Certification **AQ-SC7** will mitigate the ozone impact to a less than significant level. Similarly, the evidence shows that the PM10 and PM2.5 emissions and the PM10/PM2.5 precursor emissions of SOx will contribute to the existing violations of state PM10 and state and federal PM2.5 ambient air quality standards. Compliance with Condition of Certification **AQ-SC8** will ensure that a separate mitigation program administered by BAAQMD or additional offsets beyond those required by BAAQMD would provide reductions in sufficient quantities to offset these emissions at least a one-to-one ratio. Finally, we note that compliance with BAAQMD Condition **AQ-15** will limit ammonia emissions to no more than 5 parts per million and thereby reduce to less than significant levels any related impacts.

Thus, as discussed above, the totality of evidence establishes that there has been a thorough evaluation of air quality impacts and compliance with all of the Conditions of Certification will reduce impacts to less than significant levels and ensure project compliance with applicable LORS.

In addition to the public comments received during and after the March 15, 2011, hearing, oral and written comments were received by and on behalf of Lauritzen Yacht Harbor and Driftwood Marina in connection with March 25, 2011 continued hearing. (3/25/11 RT 73-84, 84-91, Letter dated March 24, 2011.) The comments included pictures and actual portions of boat upholstery. The pictures and upholstery shows signs of staining that Lauritzen Yacht Harbor and Driftwood Marina attribute to existing power plants in the region. Their concern is that approval of the OGS Project would likely result in air emissions that would continue or exacerbate such boat damage. Because no evidence was presented establishing a causal relationship between the air emissions of existing power plants we cannot find or reasonably infer that the existing power plants are the soles causes or contributors to this damage. Nor can we find or reasonably infer that the OGS Project would cause contribute to the damage.

We are persuaded, however, that the Lauritzen Yacht Harbor/ Driftwood Marina concerns warrant investigation and possible remediation but that such action would need to be initiated by Lauritzen Yacht Harbor or Driftwood Marina. During the March 25, 2011 the OGS Committee advised these entities of at least

two possible courses of action to address the concerns: (1) approach the local air district (BAAQMD) with the concern given that they enforce air quality-related nuisance laws and (2) contact the Energy Commission's compliance staff regarding the operation of existing regional power plants under Commission jurisdiction (including the Gateway project). (3/25/11 RT 83.)

FINDINGS AND CONCLUSIONS

Based on the record, we find as follows:

1. The OGS Project is located in the City of Oakley in Contra Costa County, California and its transmission line will traverse portions of the City of Antioch, California. The project is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

2. BAAQMD released its Final Determination of Compliance (FDOC) in January 2011, stating that the OGS Project will comply with applicable District rules, which incorporate state and federal requirements.

3. The San Francisco Bay Area, which includes the OGS Project, is designated nonattainment for the state ozone (1-hour) standard, federal and state ozone (8-hour) standards, state PM10 standard, and federal and state PM2.5 standards.

4. The project would not cause new violations of any NO_2, CO, or SO_2 ambient air quality standards. Nor will the project contribute to existing violations for these pollutants. The project's direct NO_2, CO, and SO_2 impacts are less than significant.

5. The project NO_X and VOC emissions would contribute to existing violations of state and federal ambient air quality standards for ozone. Compliance with Condition of Certification **AQ-SC7** will mitigate the ozone impact to a less than significant level.

6. The PM10 and PM2.5 emissions and the PM10/PM2.5 precursor emissions of SOx will contribute to the existing violations of state PM10 and state and federal PM2.5 ambient air quality standards. Compliance with Condition of Certification **AQ-SC8** will ensure that a separate mitigation program administered by BAAQMD would provide reductions in sufficient quantities to offset these emissions at least a one-to-one ratio.

7. The mitigation measures contained in Conditions **AQ-SC1** through **AQ-SC-5** are designed to reduce the project's construction-related air quality impacts to less than significant levels.

8. The record contains an adequate analysis of the project's potential contributions to cumulative air quality impacts.

9. There is no evidence that project-related air emissions will result in significant nuisance odors or any significant air quality impacts on soils, vegetation or sensitive species that cannot be mitigated to less than significant levels. Condition of Certification **BIO-20** addresses mitigation for nitrogen deposition impacts on species located at the Antioch Dunes National Wildlife Refuge.

CONCLUSIONS OF LAW

1. Implementation of the mitigation measures described in the record and contained in the following Conditions of Certification are sufficient to ensure that OGS Project will conform with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portions of **Appendix A** of this Decision.

2. Implementation of the mitigation measures described in the record and contained in the Conditions of Certification ensures that the project will not result in significant direct, indirect, or cumulative air quality impacts in conformance with CEQA requirements.

CONDITIONS OF CERTIFICATION

AQ-SC1 Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions **AQ-SC3, AQ-SC4** and **AQ-SC5** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM delegates. The AQCMM and AQCMM delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the compliance project manager (CPM).

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval and for consultation with the Oakley City Engineer: the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM delegates. The AQCMM and all delegates must be approved by the CPM before the start of ground disturbance.

AQ-SC2 Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide, for approval, an AQCMP that details the steps to be taken and the reporting requirements necessary to ensure compliance with conditions of certification **AQ-SC3**, **AQ-SC4** and **AQ-SC5**.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval and for consultation with the Oakley City Engineer. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCMP must be approved by the CPM before the start of ground disturbance.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each monthly compliance report (MCR) that demonstrates compliance with the following mitigation measures for purposes of preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4**. The frequency of watering may be either reduced or eliminated during periods of precipitation.

b. No vehicle shall exceed 15 miles per hour within the construction site.

c. The construction site entrances shall be posted with visible speed limit signs.

d. All construction equipment vehicle tires shall be inspected and washed as necessary to be free of dirt prior to entering paved roadways.

e. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

f. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

g. All construction vehicles shall enter the construction site through the treated entrance roadways unless an alternative route has been submitted to and approved by the CPM.

h. Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.

i. All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

j. At least the first 500 feet of any public roadway exiting from the construction site shall be swept as needed on days when construction activity occurs or on any other day when dirt or run-off from the construction site is visible on the public roadways.

k. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered or treated with appropriate dust suppressant compounds.

l. All vehicles that are used to transport solid bulk material on public roadways and that have the potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks to provide at least two feet of freeboard.

m. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

Verification: The project owner shall include in the MCR: (1) a summary of all actions taken to maintain compliance with this condition; (2) copies of any complaints filed with the air district in relation to project construction; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes with the potential to be transported off the project site, 200 feet beyond the centerline of the construction of linear facilities, or within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not providing effective mitigation. The AQCMM or delegate shall then implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed.

Step 1: Within 15 minutes of making such a determination, the AQCMM or delegate shall direct more intensive application of the existing mitigation methods.

Step 2: If Step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination, the AQCMM or delegate shall direct implementation of additional methods of dust suppression.

Step 3: If Step 2 specified above fails to result in effective mitigation within one hour of the original determination, the AQCMM or delegate shall direct a temporary shutdown of the activity causing the emissions. The activity shall not restart until the AQCMM or delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM or delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

Verification: The AQCMP shall include a section detailing how additional mitigation measures will be accomplished within the specified time limits.

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags, issued by the on-site AQCMM, showing that the engine meets the conditions set forth herein.

b. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. This good faith effort shall be documented with signed written correspondence by the appropriate construction contractors, along with documented correspondence with at least two construction equipment rental firms. In the event that a Tier 3 engine is not available for any off-road equipment larger than 50 hp, that equipment shall be equipped with a Tier 2 engine or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels, unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” for the following, as well as other, reasons:

1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and either a Tier 1 engine or the highest level of available control is being used; or

2. The construction equipment is intended to be on site for five days or less.

3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not possible.

4. Equipment owned by specialty subcontractors may be granted an exemption, for single equipment items on a case-by-case basis, if it can be demonstrated that extreme financial hardship would occur if the specialty subcontractor had to rent replacement equipment, or if it can be demonstrated that a specialized equipment item is not available by rental.

c. The use of a retrofit control device may be terminated immediately, provided that the CPM is informed within 10 working days of the termination and the AQCMM demonstrates that one of the following conditions exists:

1. The use of the control device is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure.

2. The control device is causing or is reasonably expected to cause significant engine damage.

3. The control device is causing or is reasonably expected to cause a significant risk to workers or the public.

4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.

d. All heavy earth-moving equipment and heavy duty construction-related trucks with engines meeting the requirements of (b) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

e. All diesel heavy construction equipment shall not idle for more than five minutes, to the extent practical.

f. Construction equipment will employ electric motors when feasible.

Verification: The project owner shall include in the MCR: (1) a summary of all actions taken to maintain compliance with this condition; (2) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that the equipment has been properly maintained; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA, and any revised permit issued by the District or U.S. EPA, for the project.

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

AQ-SC7 The project owner shall provide emission reductions in the form of emission reduction credits (ERCs) in the quantities of at least 98.78 tons per year (tpy) NOx and 29.60 tpy VOC. The project owner shall demonstrate that the reductions are provided in the form required by the Bay Area Air Quality Management District.

The project owner shall surrender the ERCs from among Bay Area Air Quality Management District Certificate Numbers 1241, 1242, and/or 1245, or a modified list, as allowed by this condition. If additional ERCs are submitted, the project owner shall submit a modified list including the additional ERCs to the CPM. The project owner shall request CPM approval for any substitutions, modifications, or additions to the listed credits.

The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, and that the requested change(s) will not cause the project to result in a significant environmental impact. The District must also confirm that each requested change is consistent with applicable federal and state laws and regulations.

Verification: The project owner shall submit to the CPM records showing that the project's offset requirements have been met prior to initiating construction. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall file a statement of the approval with the project owner and the Energy Commission docket. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC8 The project owner shall mitigate 63.88 tons per year (tpy) of PM10/PM2.5 and 12.55 tpy of SOx emissions. The project owner shall enter into an agreement with the Bay Area Clean Air Foundation for the project owner to contribute $32,750 per tpy (which includes a Bay Area Clean Air Foundation administration fee of 20 percent) of project PM10/PM2.5 and SOx emissions to be mitigated. The funds contributed by the project owner shall fund emission reduction projects based on the proximity of the emissions reduction project to the project site and the relative health benefit to the local community surrounding the project site by including the following project-specific conditions:

1. Diesel emission reduction projects funded by the Bay Area Clean Air Foundation with the funds contributed by the project owner shall be weighted for evaluation, qualification, and selection, in accordance with the California Air Resources Board's Carl Moyer Program Guidelines. Other emission reduction projects with the cost-effectiveness of $32,750 per tpy may be selected by the Bay Area Clean Air Foundation.
2. Funding shall initially be made available to qualified projects located preferentially within the boundaries City of Oakley, City of Antioch, City of Brentwood, and City of Pittsburg. After twelve (12) months from the date on which the administration funding has been provided to the Bay Area Clean Air Foundation, the program shall expand to include qualified projects located in Contra Costa County and Alameda County, with priority given to those projects located within areas designated by the BAAQMD as "priority communities" in the Community Air Risk Evaluation (CARE) program.
3. At all times, identified qualifying emission reduction projects located within the City of Oakley will be given the highest priority.

The project owner shall provide initial funding for emission reduction projects and administrative fees to the Bay Area Clean Air Foundation in the amount of $500,000 within 90 days after the issuance of the Authority to Construct (ATC). The project owner shall provide additional funding to the Bay Area Clean Air Foundation on a monthly basis as necessary to fund the qualifying emission reduction projects selected for that month. The project owner shall make a final demonstration of the quantity and schedule of all emission reductions sponsored by the funding at least 30 days prior to first turbine fire..

Verification: The project owner shall submit to the CPM confirmation that the appropriate initial funding has been provided within 90 days after the issuance of the ATC. Additionally, the project owner shall submit to the CPM confirmation that the appropriate funding has been provided to the Bay Area Clean Air Foundation at least 30 days prior to the first fire. The project owner shall provide

quarterly summaries of the emission reduction project selection information to the CPM for review until such time that all funds have been committed by the Bay Area Clean Air Foundation to qualifying projects.

AQ-SC9 The project owner shall submit to the CPM quarterly operation reports that include operational and emissions information as necessary to demonstrate compliance with the conditions of certification. The quarterly operation report shall specifically note or highlight incidences of noncompliance.

Verification: The project owner shall submit quarterly operation reports to the CPM and APCO no later than 30 days following the end of each calendar quarter. This information shall be maintained on site for a minimum of five years and shall be provided to the CPM and District personnel upon request.

AQ-SC10 The facility shall be operated such that simultaneous commissioning of the two combustion turbines without abatement of nitrogen oxide or carbon monoxide emissions by its SCR system and oxidation catalyst system will not occur. Operation of one combustion turbine during commissioning without abatement shall be limited to times when the second combustion turbine is either non-operational or in compliance with emission limits for routine operation.

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this condition.

BAAQMD PROPOSED PERMIT CONDITIONS

The following conditions would be applicable to the proposed OGS facility (BAAQMD 2011a). This Final Staff Assessment reflects the BAAQMD Final Determination of Compliance conditions, from January 2011. The BAAQMD conditions are grouped as follows:

- **AQ-1** through **AQ-9** apply during the commissioning period.
- **AQ-10** through **AQ-30** apply to the two CTGs with unfired HRSGs (S-1 and S-2) after the commissioning period has ended [Gas Turbine Generator #1 and #2, GE Frame 7FA, Natural Gas-Fired, 213 MW, 2,150 MMBtu/hr (HHV) maximum rated capacity with high-efficiency inlet air filter; abated by A-1 and A-3 Selective Catalytic Reduction System (SCR) and A-2 and A-4 Oxidation Catalyst].
- **AQ-31** through **AQ-38** apply to the auxiliary boiler (S-3) [Natural Gas-Fired, 50.6 MMBtu/hr (HHV) maximum rated capacity (abated by A-5 Oxidation Catalyst if required)].
- **AQ-39** through **AQ-42** apply to the diesel fire water pump engine (S-4) [Fire Pump Diesel Engine, Clarke JW6H-UFAD80, 400 hp, 2.78 MMBtu/hr maximum rated heat input].
- Facility-wide conditions are **AQ-43** to **AQ-50**.

GE 7FA Combined-Cycle Gas Turbines

Applicability:

Conditions of Certification **AQ-1** through **AQ-9** of this condition shall only apply during the commissioning period as defined below. Unless otherwise indicated, **AQ-10** through **AQ-30** of these conditions shall apply after the commissioning period has ended.

Conditions for the Commissioning Period for GE 7FA Gas Turbines (S-1 and S-2)

AQ-1 The owner/operator shall minimize emissions of carbon monoxide and nitrogen oxides from S-1 and S-2 Gas Turbines to the maximum extent possible during the commissioning period. (Basis: BACT, Regulation 2, Rule 2, Section 409)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-2 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune the S-1 and S-2 Gas Turbines combustors to minimize the emissions of carbon monoxide and nitrogen oxides. (Basis: BACT, Regulation 2, Rule 2, Section 409)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-3 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall install, adjust, and operate the A-2 and A-4 Oxidation Catalysts and A-1 and A-3 SCR Systems to minimize the emissions of carbon monoxide and nitrogen oxides from S-1 and S-2 Gas Turbines. (Basis: BACT, Regulation 2, Rule 2, Section 409)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-4 The owner/operator shall submit a plan to the District Engineering Division and the CEC CPM at least four weeks prior to first firing of S-1 and S-2 Gas Turbines describing the procedures to be followed during the commissioning of the gas turbines. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the Dry-

Low-NO_X combustors, the installation and operation of the required emission control systems, the installation, calibration, and testing of the CO and NO_X continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1 and S-2) without abatement or with partial abatement by their respective oxidation catalysts and/or SCR Systems. The owner/operator shall not fire any of the Gas Turbines (S-1 or S-2) sooner than 28 days after the District receives the commissioning plan. (Basis: Regulation 2, Rule 2, Section 419)

Verification: The project owner shall submit a commissioning plan to the CPM and APCO for approval at least four weeks prior to first firing of the gas turbine describing the procedures to be followed during the commissioning period and the anticipated duration of each commissioning activity.

AQ-5 During the commissioning period, the owner/operator shall demonstrate compliance with **AQ-7**, **AQ-8**, and **AQ-9** through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters and emission concentrations:

-firing hours
-fuel flow rates
-stack gas nitrogen oxide emission concentrations
-stack gas carbon monoxide emission concentrations
-stack gas oxygen concentrations

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-1 and S-2). The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_X and CO emission concentrations, summarized for each clock hour and each calendar day. The owner/operator shall retain records on site for at least 5 years from the date of entry and make such records available to District personnel upon request. (Basis: Regulation 2, Rule 2, Section 419)

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-4**.

AQ-6 The owner/operator shall install, calibrate, and operate the District-approved continuous monitors specified in **AQ-5** prior to first firing of the Gas Turbines (S-1 and S-2). After first firing of the turbines, the owner/operator shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and NO_X emission concentrations. The instruments shall operate at all times of operation of S-1 and S-2 including start-up, shutdown, upset, and malfunction, except as allowed by BAAQMD

Regulation 1-522, BAAQMD Manual of Procedures, Volume V. If necessary to comply with this requirement, the owner/operator shall install dual-span monitors. The type, specifications, and location of these monitors shall be subject to District review and approval. (Basis: Regulation 2, Rule 2, Section 419)

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

AQ-7 The owner/operator shall not fire S-1 and S-2 Gas Turbine without abatement of nitrogen oxide emissions by the corresponding SCR System A-1 and A-3 and/or abatement of carbon monoxide emissions by the corresponding Oxidation Catalyst A-2 and A-4 for more than a combined total of 831 hours during the commissioning period. Such operation of any Gas Turbine (S-1, S-2) without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Engineering Division and Compliance and Enforcement Division and the unused balance of the 831 firing hours without abatement shall expire. (Basis: BACT, Regulation 2, Rule 2, Section 409)

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-4**. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-8 The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM10, and sulfur dioxide that are emitted by the Gas Turbines (S-1, and S-2) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in **AQ-43**. (Basis: Regulation 2, Rule 2, Section 409)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-9 The owner/operator shall not operate the Gas Turbines (S-1 and S-2) in a manner such that the pollutant emissions from each gas turbine will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-1, S-2). (Basis: BACT, Regulation 2, Rule 2, Section 409)

NO_X (as NO_2)	2,380.8 pounds per calendar day	148.7 pounds per hour
CO	13,303 pounds per calendar day	700 pounds per hour

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

Conditions for the GE 7FA Combined-Cycle Gas Turbines (S-1 and S-2)

AQ-10 The owner/operator shall fire the Gas Turbines (S-1 and S-2) exclusively on PUC regulated natural gas with a maximum sulfur content of 1 grain per 100 standard cubic feet. To demonstrate compliance with this limit, the operator of S-1 and S-2 shall sample and analyze the gas from each supply source at least monthly to determine the sulfur content of the gas. PG&E monthly sulfur data may be used provided that such data can be demonstrated to be representative of the gas delivered to the OGS. (Basis: BACT for SO_2 and PM10)

Verification: The result of the natural gas fuel sulfur monitoring data and other fuel sulfur content source data shall be submitted to the District and CPM in the quarterly operation report (**AQ-SC9**).

AQ-11 The owner/operator shall not operate the units such that the heat input rate to each Gas Turbine (S-1 and S-2) exceeds 2,150 MMBtu (HHV) per hour. (Basis: BACT for NO_X)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-12 The owner/operator shall not operate the units such that the heat input rate to each Gas Turbine (S-1 and S-2) exceeds 51,600 MMBtu (HHV) per day. (Basis: Cumulative Increase for PM10)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-13 The owner/operator shall not operate the units such that the combined cumulative heat input rate for the Gas Turbines (S-1 and S-2) exceeds 35,397,277 MMBtu (HHV) per year. (Basis: Offsets)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-14 The owner/operator shall ensure that each Gas Turbine (S-1, S-2) is abated by the properly operated and properly maintained Selective Catalytic Reduction (SCR) System A-1 or A-3 and Oxidation Catalyst System A-2 or A-4 whenever fuel is combusted at those sources and the corresponding SCR catalyst bed (A-1 or A-3) has reached minimum operating temperature. (Basis: BACT for NO_X, POC and CO)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, and the Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-15 The owner/operator shall ensure that the Gas Turbines (S-1, S-2) comply with the following limits. The limits in this part do not apply during a gas turbine start-up, combustor tuning operation or shutdown. (Basis: BACT and Regulation 2, Rule 5)

a) Nitrogen oxide mass emissions (calculated as NO_2) at each exhaust point P-1 and P-2 (exhaust point for S-1 and S-2 Gas Turbine after abatement by A-1 and A-3 SCR System) shall not exceed 15.52 pounds per hour, averaged over any 1-hour period. (Basis: Cumulative Increase for NOx)

b) The nitrogen oxide emission concentration at each exhaust point P-1 and P-2 shall not exceed 2.0 ppmv, on a dry basis, corrected to 15% O2, averaged over any 1-hour period. (Basis: BACT for NOx)

c) Carbon monoxide mass emissions at each exhaust point P-1 and P-2 shall not exceed 9.45 pounds per hour, averaged over any 1-hour period. (Basis: Cumulative Increase for CO)

d) The carbon monoxide emission concentration at each exhaust point P-1 and P-2 shall not exceed 2.0 ppmv, on a dry basis, corrected to 15 percent O_2 averaged over any 1-hour period. (Basis: BACT for CO)

e) Ammonia (NH3) emission concentrations at each exhaust point P-1 and P-2 shall not exceed 5 ppmv, on a dry basis, corrected to 15 percent O_2, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to each SCR System A-1 and A-3. The correlation between the gas turbine heat input rates, A-1 and A-3 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1 and P-2 shall be determined in accordance with **AQ-24** or a District approved alternative method. The APCO may require the installation on one exhaust point (P-1 or P-2 at the owner/operator's discretion) of a CEM designed to monitor ammonia concentrations

if the APCO determines that a commercially available CEM has been proven to be accurate and reliable and that an adequate Quality Assurance/Quality Control protocol for the CEM has been established. The District or another agency must establish a District-approved Quality Assurance/Quality Control protocol prior to the ammonia CEM being a requirement of this part. The APCO shall use the first year of ammonia CEM data to establish the appropriate ammonia emission concentration limit and averaging time for compliance demonstration by CEM. After the APCO has established the ammonia limit, the ammonia CEM shall be used to demonstrate compliance for the gas turbine being monitored by CEM. The gas turbine with the ammonia CEM shall still be subject to the emission testing requirements in **AQ-24**. For the gas turbine with the ammonia CEM, calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate shall be submitted to the District for informational purposes only. (Basis: Regulation 2, Rule 5)

f) Precursor organic compound (POC) mass emissions (as CH_4) at each exhaust point P-1 and P-2 shall not exceed 2.71 pounds per hour.

(Basis: Cumulative Increase for POC)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-16 The owner/operator shall ensure that the regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, and S-2) during a start-up or shutdown does not exceed the limits established below. (Basis: BACT Limit for Non-Steady-State Operation)

Pollutant	Hot/Warm Startup (lb/startup)	Maximum Emissions During an Hour Containing a Hot/Warm Startup (lb/hr)	Maximum Emissions Per Cold Startup (lb/startup)	Maximum Emissions During an Hour Containing a Cold Startup (lb/hr)	Maximum Emissions Per Shutdown (lb/shutdown)	Maximum Emissions During an Hour Containing a Shutdown (lb/hr)
NO_X (as NO_2)	22.3	33.9	96.3	99.9	39.3	46.8
CO	85.2	92.2	360.2	362.4	140.2	144.7
POC (as CH_4)	31.1	33.1	67.1	67.7	17.1	18.4

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-17 The owner/operator shall not perform combustor tuning on each Gas Turbine (S-1 or S-2) more than twice in any consecutive 12 month period. Each tuning event shall not exceed eight hours. Combustor tuning shall only be performed on one gas turbine per day. The owner/operator shall notify the District Engineering Division and Compliance and Enforcement Division no later than sevem days prior to combustor tuning activity, except in exigent circumstances. If exigent circumstances arise, the owner/operator shall notify the District Engineering Division and Compliance and Enforcement Division in writing 24 hours prior to combustor tuning activity detailing the circumstances. The emissions during combustor tuning from each gas turbine shall not exceed the hourly limits established below, and shall not exceed hourly limits established by the District based on emissions data obtained during the first tuning event for each turbine. The owner/operator shall measure and record mass emissions of NOx and CO using the continuous emission monitors during tuning.

The owner/operator shall measure POC emissions during the first tuning after the first turbine has been commissioned using a District-approved source test method. The owner/operator shall seek District approval of the test method in accordance with **AQ-29** below. The owner/operator shall submit the record of the NOx, CO, and POC

emissions during the first tuning event after the first turbine has been commissioned to the District within 60 days after the first tuning event. The District shall establish mass emissions limits for the future tuning events based on this test data and shall notify the owner/operator of these limits. (Basis: BACT, Offsets, Cumulative Increase)

Pollutant	Emissions Limit (lb/hr)
NO_X (as NO_2)	96
CO	360
POC (as CH_4)	67

Verification: The project owner shall notify both the District and CPM at least 7 days prior to the combustor tuning. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-18 The owner/operator shall not allow total emissions from each Gas Turbine (S-1 or S-2), including emissions generated during gas turbine start-ups, and shutdowns to exceed the following limits during any calendar day (except for days during which combustor tuning events occur, which are subject to **AQ-19** below):

a) 488 pounds of NO_X (as NO_2) per day (Basis: Cumulative Increase)

b) 715 pounds of CO per day (Basis: Cumulative Increase)

c) 146 pounds of POC (as CH_4) per day (Basis: Cumulative Increase)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-19 The owner/operator shall not allow total emissions from each Gas Turbine (S-1 or S-2), including emissions generated during gas turbine start-ups, shutdowns, and combustor tuning events to exceed the following limits during any calendar day on which a tuning event occurs:

a) 971 pounds of NO_X (as NO_2) per day (Basis: Cumulative Increase)

b) 2818 pounds of CO per day (Basis: Cumulative Increase)

c) 531 pounds of POC (as CH_4) per day (Basis: Cumulative Increase)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-20 The owner/operator shall not allow the maximum projected annual toxic air contaminant emissions (per **AQ-23**) from the Gas Turbines (S-1, S-2) combined to exceed the following limits:

Formaldehyde	16,636.1 pounds per year
Benzene	462.9 pounds per year
Specified polycyclic aromatic hydrocarbons (PAHs)	4.54 pounds per year unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment to determine the total facility risk using the emission rates determined by source testing and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. The owner/operator shall submit the risk analysis to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will not result in a significant cancer risk, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (Basis: Regulation 2, Rule 5)

Verification: Source test results obtained through compliance with **AQ-23** and **AQ-27** shall confirm the toxic air contaminant emission rates or the project owner shall submit an updated health risk assessment.

AQ-21 The owner/operator shall demonstrate compliance with **AQ-11** through **AQ-13**, **AQ-15**(a) through **AQ-15**(d), **AQ-16** (NO_X, and CO limits), **AQ-17** (NO_X, and CO limits), **AQ-18**(a), **AQ-18**(b), **AQ-19**(a), **AQ-19**(b), **AQ-43**(a) and **AQ-43**(b) by using properly operated and maintained continuous monitors (during all hours of operation including gas turbine start-up, combustor tuning, and shutdown periods). If necessary to comply with this requirement, the owner/operator shall install

dual-span monitors. The owner/operator shall monitor for all of the following parameters and record each parameter at least every 15 minutes (excluding normal calibration periods):

a) Firing Hours and Fuel Flow Rates for each of the following sources: S-1 and S-2

b) Oxygen (O_2) concentration, Nitrogen Oxides (NOx) concentration, and carbon monoxide (CO) concentration at exhaust points P-1 and P-2

c) Ammonia injection rate at A-1 and A-2 SCR Systems

The owner/operator shall use the parameters measured above and District approved calculation methods to calculate and record the following parameters for each gas turbine (S-1 and S-2):

d) Corrected NOx concentration and corrected CO concentration, averaged for each clock hour

e) Corrected NOx concentration and corrected CO concentration, averaged for each calendar day

The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate and record the following parameters for each gas turbine (S-1 and S-2) and totaled for S-1 and S-2:

f) For each rolling three hour period, the heat input rate in MMBtu (HHV) per hour

g) For each calendar day, the average hourly heat input rate in MMBtu (HHV) per hour and total daily heat input rate in MMBtu (HHV) per day

h) For each consecutive twelve month period, the total heat input rate in MMBtu (HHV) per year

i) For each clock hour, the NOx mass emission rate (as NO_2) and CO mass emissions rate in pounds per hour

j) For each calendar day, the NOx mass emission rate (as NO_2) and CO mass emissions rate in pounds per day

k) For each consecutive 12-month period, the monthly NOx (as NO_2) and CO mass emissions rates in pounds per month and annual NOx and CO mass emissions rates in pounds per year and tons per year

(Basis: 1-520.1, 9-9-501, BACT, Offsets, NSPS, Cumulative Increase)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the continuous monitoring and recordkeeping system is properly installed and operational.

AQ-22 To demonstrate compliance with **AQ-15**(f), **AQ-18**(c), **AQ-19**(c), and **AQ-43**(c) the owner/operator shall calculate and record on a daily basis, the precursor organic compound (POC) mass emissions from each power train. The owner/operator shall use the actual heat input rates measured pursuant to **AQ-21**, actual Gas Turbine start-up times, actual Gas Turbine shutdown times, and CEC and District-approved emission factors developed pursuant to source testing under **AQ-25** to calculate these emissions. The owner/operator shall present the calculated emissions in the following format:

a) For each calendar day, POC mass emissions, summarized for each gas turbine and S-1 and S-2 combined

b) For each consecutive 12-month period, the cumulative total POC mass emissions for each gas turbine and S-1 and S-2 combined.

(Basis: Offsets, Cumulative Increase)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational.

AQ-23 To demonstrate compliance with **AQ-20**, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAHs. The owner/operator shall calculate the maximum projected annual emissions using the combined maximum annual heat input rate of 35,397,277 MMBtu/year for S-1 and S-2 combined and the highest emission factor (pounds of pollutant per MMBtu of heat input) determined by the most recent of any source test of the S-1 or S-2 Gas Turbines. If the highest emission factor for a given pollutant occurs during minimum-load turbine operation, a reduced annual heat input rate may be utilized to calculate the maximum projected annual emissions to reflect the reduced heat input rates during gas turbine start-up and minimum-load operation. The reduced annual heat input rate shall be subject to District review and approval. (Basis: Regulation 2, Rule 5)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational.

AQ-24 Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each of the OGS GE 7FA units or as otherwise approved by the APCO, the owner/operator shall conduct a District-

approved source test on each corresponding exhaust point P-1 or P-2 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with **AQ-15**(e). The source test shall determine the correlation between the heat input rates of the gas turbine, A-1 or A-3 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-1 or P-2. The source test shall be conducted over the expected operating range of the turbine (including, but not limited to, minimum and full load modes) to establish the range of ammonia injection rates necessary to achieve NO_X emission reductions while maintaining ammonia slip levels. The owner/operator shall repeat the source testing on an annual basis thereafter. Ongoing compliance with **AQ-15**(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: Regulation 2, Rule 5)

Verification: The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-29**). Testing for steady-state emissions shall be conducted upon initial operation and at least once every 12 months.

AQ-25 Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each of the OGS GE 7FA units or as otherwise approved by the APCO and, at a minimum, on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1 and P-2 while each Gas Turbine is operating at maximum load to determine compliance with **AQ-15**(a), **AQ-15**(b), **AQ-15**(c), **AQ-15**(d), **AQ-15**(f), and to establish the emissions factors to be used to demonstrate compliance with **AQ-43**(d) and **AQ-43**(e); and while each Gas Turbine is operating at minimum load to determine compliance with **AQ-15**(c) and **AQ-15**(d); and to verify the accuracy of the continuous emission monitors required in **AQ-21**. The owner/operator shall test for (as a minimum each year): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO_2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and PM10 emissions including condensable particulate matter. The owner/operator may conduct source tests of individual compounds listed in this part separately. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. The owner/operator may perform up to four tests per year for PM10 emissions including condensable particulate matter. (Basis: BACT, Offsets, Cumulative Increase)

Verification: The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-29**). Testing for steady-state emissions shall be conducted upon initial operation and at least once every 12 months.

AQ-26 Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each OGS GE 7FA units or as otherwise approved by the APCO, the owner/operator shall conduct District- and CEC-approved source tests for that Gas Turbine to determine compliance with the emission limitations specified in **AQ-16**. The source tests shall determine NOx, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Thirty working days before the execution of the source tests, the owner/operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this Part. The District and the CEC CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CEC CPM comments into the test plan. The owner/operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of the source testing date. (Basis: Regulation 2, Rule 2, Section 419)

Verification: The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-4**.

AQ-27 Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of the second of the OGS GE 7FA gas turbines or as otherwise approved by the APCO, and on a biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on one of the following exhaust points P-1 or P-2 while the Gas Turbine is operating at maximum allowable operating rates to demonstrate compliance with **AQ-20**. The owner/operator shall also test the gas turbine while it is operating at minimum load. If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to **AQ-23** for any of the compounds are less than 50 percent of the levels listed in **AQ-20**, then the owner/operator may discontinue future testing for that pollutant. (Basis: Regulation 2, Rule 5)

Verification: The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a

pre-approved protocol (**AQ-29**). Testing for toxic air contaminant emissions shall be conducted upon initial operation and at least once every 24 months.

AQ-28 Within 90 days of the beginning of the start-up period (as defined in Regulation 2-1-210) of each of the OGS GE 7FA gas turbines or as otherwise approved by the APCO and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on one of the two exhaust points P-1 or P-2 while the gas turbine is operating at maximum heat input rate to demonstrate compliance with the total sulfuric acid mist emission rate for S-1 and S-2 of 6.3 tons per year. The owner/operator shall test for (as a minimum) SO_2, SO_3, and H_2SO_4, and the sulfur content of the fuel. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: Regulation 2, Rule 5)

Verification: The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-29**). Testing for steady-state emissions shall be conducted upon initial operation and at least once every 12 months.

AQ-29 The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the owner/operator shall measure the contribution of condensable PM (back half) to any measurement of the total particulate matter or PM10 emissions. However, the owner/operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: BACT, Regulation 2, Rule 2, Section 419)

Verification: The project owner shall submit the proposed source test plan or protocol for the source tests seven days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than seven days prior to the proposed source test date and time.

AQ-30 The owner/operator shall ensure that the stack height of emission points P-1 and P-2 is each at least 155.5 feet above grade level at the stack base. (Basis: Regulation 2, Rule 5)

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

Auxiliary Boiler (S-3)

AQ-31 The owner/operator shall submit manufacturer's specifications and emissions guarantees for NO_X and CO for the Auxiliary Boiler (S-3) to the District Engineering Division and the CEC CPM at least four weeks prior to first firing of Auxiliary Boiler (S-3). (Basis: Regulation 2, Rule 2, Section 419)

Verification: At least thirty (30) days prior to the installation of the Auxiliary Boiler, the project owner shall provide the District and the CPM the specifications for the boiler.

AQ-32 If Oxidation Catalyst (A-5) is required, the owner/operator shall install, adjust, and operate the A-5 Oxidation Catalyst at the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturers and the construction contractor, to minimize the emissions of carbon monoxide from S-3 Auxiliary Boiler. (Basis: Regulation 2, Rule 2, Section 419)

Verification: The project owner shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission.

AQ-33 The heat input rate to the Auxiliary Boiler (S-3) shall not exceed 50.6 MMBtu per hour, averaged over any rolling 3-hour period. (Basis: Cumulative Increase)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-34 The heat input rate to the Auxiliary Boiler (S-3) shall not exceed 218,606 MMBtu per year. (Basis: Cumulative Increase)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-35 The owner/operator of the Auxiliary Boiler (S-3) shall meet all of the requirements listed in below.

a) Nitrogen oxide emissions at P-3 (the exhaust point for the Auxiliary Boiler) shall not exceed 9.8 pounds per day, calculated as NO_2. (Basis: Regulation 2-1-403)

b) Carbon monoxide emissions at P-3 shall not exceed 9.8 pounds per day. (Basis: Regulation 2-1-403)

c) POC emissions (as CH_4) at P-3 shall not exceed 2.8 pounds per day.

(Basis: Regulation 2-1-403)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-36 The owner/operator shall demonstrate compliance with **AQ-35**(a), **AQ-35**(b) and **AQ-43**(a) and **AQ-43**(b) by using properly operated and maintained continuous monitors (during all hours of operation including auxiliary boiler start-up, tuning, and shutdown periods). The owner/operator shall monitor for all of the following parameters and record each parameter at least every 15 minutes (excluding normal calibration periods):

a) Firing Hours and Fuel Flow Rates

b) Oxygen (O_2) concentration, Nitrogen Oxides (NOx) concentration, and carbon monoxide (CO) concentration at exhaust point P-3

The owner/operator shall use the parameters measured above and District approved calculation methods to calculate and record the following parameters for the Auxiliary Boiler (S-3):

c) Corrected NOx concentration and corrected CO concentration, averaged for each clock hour

d) Corrected NOx concentration and corrected CO concentration, averaged for each calendar day

The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate and record the following parameters for Auxiliary Boiler (S-3):

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e) For each rolling three hour period, the heat input rate in MMBtu (HHV) per hour

f) For each calendar day, the average hourly heat input rate in MMBtu (HHV) per hour and total daily heat input rate in MMBtu (HHV) per day

g) For each consecutive twelve month period, the total heat input rate in MMBtu (HHV) per year

h) For each clock hour, the NOx mass emission rate (as NO_2) and CO mass emissions rate in pounds per hour

i) For each calendar day, the NOx mass emission rate (as NO_2) and CO mass emissions rate in pounds per day

j) For each consecutive 12-month period, the monthly NOx (as NO_2) and CO mass emissions rates in pounds per month and annual NOx (as NO_2) and CO mass emissions rates in pounds per year and tons per year

(Basis: 1-520.1, 9-7-307, BACT, Offsets, Cumulative Increase)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the monitoring and recordkeeping system is properly installed and operational.

AQ-37 To demonstrate compliance with **AQ-35**(c) the owner/operator shall calculate and record on a daily basis, the precursor organic compound (POC) mass emissions from the auxiliary boiler. The owner/operator shall use the actual heat input rates measured pursuant to **AQ-36**, and CEC and District-approved emission factors developed pursuant to source testing under **AQ-38** to calculate these emissions. The owner/operator shall present the calculated emissions in the following format:

a) For each calendar day, POC mass emissions, summarized for S-3

b) For each consecutive 12-month period, the cumulative total POC mass emissions for S-3.

(Basis: Offsets, Cumulative Increase)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational.

AQ-38 Within 90 days of start-up of Auxiliary Boiler (S-3), the owner/operator shall conduct a District-approved source test on exhaust point P-3 while the auxiliary boiler is operating at maximum load to determine

emission factors for POC, PM10 and SO_X. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO_2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and PM10 emissions including condensable particulate matter. Thirty working days before the execution of the source tests, the owner/operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this Part. The District and the CEC CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CEC CPM comments into the test plan. The owner/operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of the source testing date. (Basis: Regulation 2, Rule 2, Section 419)

Verification: The project owner shall submit for approval, the source test plan to the District and CPM, thirty (30) working days before the execution of the compliance test required in this condition. The test results shall be submitted to the District and to the CPM within sixty (60) days of the source testing date.

Conditions for the Fire Pump Diesel Engine (S-4)

AQ-39 The owner/operator shall fire the Fire Pump Diesel Engine (S-4) exclusively on diesel fuel having a sulfur content no greater than 0.0015% by weight. (Regulation 2, Rule 5, Cumulative Increase, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.5(a))

Verification: The project owner shall make the site available for inspection of equipment and fuel purchase records by representatives of the District, ARB, and the Energy Commission.

AQ-40 The owner/operator shall operate the Fire Pump Diesel Engine (S-4) for no more than 49 hours per year for the purpose of reliability testing and non-emergency operation. (Regulation 2, Rule 5, Cumulative Increase, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.6(a)(4)(A))

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-41 The owner/operator shall operate the Fire Pump Diesel Engine (S-4) only when a non-resettable totalizing hour meter (with a minimum display capability of 9,999 hours) is installed, operated and properly maintained. (Basis: BAAQMD Regulation 9-8-530, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.10(e)(1)).

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Energy Commission. The project owner shall include a photograph of each totalizing meter in the quarterly operation report (**AQ-SC9**).

AQ-42 The owner/operator shall maintain the following monthly records for Fire Pump Engine (S-4) in a District-approved log for at least 5 years.

a. Hours of operation for reliability-related activities (maintenance and testing).

b. Hours of operation for emission testing to show compliance with emission limits.

c. Hours of operation for emergency use.

d. For each emergency, the nature of the emergency condition.

e. Fuel usage.

Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request. (Basis: BAAQMD Regulation 9-8-530, "Stationary Diesel Engine ATCM", CA Code of Regulations, Title 17, Section 93115.10(g))

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

Conditions for the Combined-Cycle Gas Turbines (S-1 and S-2), Auxiliary Boiler (S-3), and Fire Pump Engine (S-4)

AQ-43 The owner/operator shall not allow total combined emissions from the Gas Turbines (S-1 and S-2), including emissions generated during gas turbine start-ups, combustor tuning, shutdowns, and malfunctions, the auxiliary boiler (S-3), including emissions generated during auxiliary boiler start-ups, tune-ups, shutdowns, and malfunctions, and the fire pump diesel engine (S-4), including non-emergency and emergency operation, to exceed the following limits during any consecutive twelve-month period:

a) 98.78 tons of NOx (as NO_2) (Basis: Offsets)

b) 98.82 tons of CO (Basis: Cumulative Increase)

c) 29.49 tons of POC (as CH_4) (Basis: Offsets)

d) 63.78 tons of PM_{10} (Basis: Cumulative Increase)

e) 12.55 tons of SO_2 (Basis: Cumulative Increase)

Compliance with the limits in this part shall be determined using the following procedures:

Emissions of PM10 and SO_2 from each gas turbine shall be calculated by multiplying turbine fuel usage times an emission factor determined by source testing of the turbine conducted in accordance with **AQ-25**. The emission factor for each turbine shall be based on the average of the emissions rates observed during the 4 most recent source tests on that turbine (or, prior to the completion of 4 source tests on a turbine, on the average of the emission rates observed during all source tests on the turbine).

Emissions of PM10, SO_2, and POC from the auxiliary boiler shall be calculated by multiplying auxiliary boiler fuel usage times an emission factor determined by source testing of the auxiliary boiler conducted in accordance with **AQ-38**.

The owner/operator shall calculate emissions from the fire pump diesel engine from the hours of operation recorded in **AQ-42** and the following emission factors:

NOx: 2.62 g/hp-hr

CO: 0.67 g/hp-hr

POC: 0.14 g/hp-hr

PM: 0.119 g/hp-hr

SO_x: 0.004 g/hp-hr

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-44 To demonstrate compliance with **AQ-43**, the owner/operator shall record the total emissions for each consecutive 12-month period. The owner/operator shall calculate emissions of each pollutant listed in

AQ-43(a) through (e) from the gas turbines, auxiliary boiler, and fire pump diesel engine for each calendar month using the calculation procedures established in **AQ-43**, and shall calculate annual emissions to determine compliance with the limits listed in **AQ-43**(a) through (e) by summing the monthly totals for the previous 12 months. (Basis: Regulation 2, Rule 2, Section 419)

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational.

AQ-45 The owner/operator shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Compliance and Enforcement Division Policies & Procedures Manual. (Basis: Regulation 2, Rule 1, Section 403)

Verification: The project owner shall ensure that notifications and reports, including the quarterly operation report (**AQ-SC9**), are prepared and submitted in compliance with this condition.

AQ-46 The owner/operator shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The owner/operator shall make all records and reports available to District and the CEC CPM staff upon request. (Basis: Regulation 2, Rule 1, Section 403, Regulation 2, Rule 6, Section 501)

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

AQ-47 The owner/operator shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the owner/operator shall submit written notification (facsimile is acceptable) to the Compliance and Enforcement Division within 96 hours of the violation of any permit condition. (Basis: Regulation 2, Rule 1, Section 403)

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC9**).

AQ-48 The owner/operator shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall comply with the District Manual of Procedures, Volume IV, Source Test Policy and Procedures, and shall be subject to BAAQMD review and approval, except that the facility shall provide four sampling ports that are at least 6 inches in diameter in the same plane of each gas turbine stack (P-1, P-2). (Basis: Regulation 1, Section 501)

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

AQ-49 Within 180 days of the issuance of the Authority to Construct for the OGS, the owner/operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous emission monitors, sampling ports, platforms, and source tests required by **AQ-24** through **AQ-28**, and **AQ-38**. The owner/operator shall conduct all source testing and monitoring in accordance with the District approved procedures. (Basis: Regulation 1, Section 501)

Verification: The project owner shall contact the District for specifications on monitors, ports, platforms and source tests and shall submit verification of this contact to the District and CPM with the initial source test protocol (**AQ-29**).

AQ-50 The owner/operator shall ensure that the OGS complies with the continuous emission monitoring requirements of 40 CFR Part 75. (Basis: Regulation 2, Rule 7)

Verification: The project owner shall submit to the CPM and District the results of audits of the monitoring system demonstrating compliance with this condition as part of the quarterly operation report (**AQ-SC9**).

C. PUBLIC HEALTH

The public health analysis supplements the **Air Quality** section and considers the potential public health effects that could result from exposure to emissions of toxic air contaminants (or "TACs") during project construction and operation. This topic focuses on whether such emissions represent significant public health impacts or violate standards for public health protection.[1] The evidence presented by the parties was uncontested. (3/15/11 RT 67-77; Exs. 1, § 5.9, Appendix 5.1D; 12; 32; 55; 57[2]; 300, § 4.7; 301; 401.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will produce routine emissions of toxic air contaminants for which no ambient air quality standards have been established. These substances are categorized as noncriteria pollutants. In the absence of standards, state and federal regulatory agencies have developed health risk assessment procedures to evaluate potential health effects from exposure to these TACs. (Ex. 300, p. 4.7-1.)

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the project could emit into the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterize potential health risks by comparing worst-case exposure to the project with the scientific safety standards based on known health effects. (Ex. 300, pp. 4.7-3 – 4.7-4.)

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[1] This Decision describes other potential public health concerns under specific topics. Potential impacts from emissions of criteria pollutants are analyzed in the **Air Quality** section. The accidental release of hazardous materials is addressed in **Hazardous Materials Management**. Electromagnetic fields are covered in **Transmission Line Safety and Nuisance**. Potential impacts to soils and surface water sources are considered in the **Soil and Water Resources** section. Potential exposure to contaminated soils and hazardous wastes are described in **Waste Management**. The **Socioeconomics, Traffic and Transportation,** and **Worker Safety and Fire Prevention** sections include analyses of the project's potential effects upon local infrastructure such as police, medical, and fire services. (Ex. 300, p. 4.7-1.)

[2] Exhibit 57 represents a stipulation by and among the Applicant, Staff, and Intervenor Sarvey, which resolves all pre-hearing disputes regarding topics that include Public Health and Environmental Justice.

Typically, the initial health risk analysis is performed at a "screening level," which is designed to estimate potential health risks under the most conservative, worst-case conditions and model those conditions to analyze results.[3] Such conditions include:

- Using the highest levels of pollutants that could be emitted from the power plant;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years; and
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses). (Ex. 300, pp. 4.7-3-4.7-4.)

The risk assessment for the OGS Project addresses three categories of potential health impacts: acute (short-term) effects; chronic (long-term) noncancer effects; and cancer risk (also long-term).[4] Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants; these effects are temporary. Chronic non-cancer health effects occur as a result of long-term exposure (7 to 70 years) to lower concentrations of pollutants. For carcinogenic substances, the health assessment considers the total risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. (Exs. 1, p. 5.9-5; 300, pp. 4.7-4 – 4.7-5.)

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[3] The Applicant and Staff obtained data from and were guided by standards from several expert agencies, including the California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA), which identifies contaminants that are known to cause cancer or other noncancer toxicological endpoints and calculates the toxicity and cancer potency factors of these contaminants. In addition, the California Air Resources Board and the local air districts conduct ambient air monitoring of toxic air contaminants and the state Department of Public Health conducts epidemiological investigations into the impacts of pollutants on communities. (Exs. 1, § 5.9; 300, § 4.7.)

[4] Human exposure pathways include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and mother's milk. (Ex. 300, p. 4.7-4.)

The analysis for noncancer chronic health effects compares the maximum project contaminant levels to safe levels called Reference Exposure Levels or RELs. These exposure levels are designed to protect the most sensitive individuals in the population such as infants, the elderly, and people suffering from illnesses or diseases which make them more susceptible to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in medical and toxicological literature, and include margins of safety. (Ex. 300, p. 4.7-4.)

Staff assesses the significance of noncancer health effects by calculating a "hazard index" for the exposure being considered. A hazard index is a ratio obtained by comparing exposure from facility emissions to the reference (safe) exposure level for the toxicant. A "hazard index" of less than 1.0 signifies that the worst-case exposure is less than the safe exposure level, and thus there are not likely to be adverse noncancer health effects. (Ex. 300, p. 4.7-5.)

The assessment also considers risk from all cancer-causing chemicals from the project's emissions. The calculated risk is not meant to predict the actual expected incidence of cancer, but is rather a theoretical estimate based on worst-case assumptions. Cancer risk is expressed in chances per million and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer, and the length of the exposure period. The State of California has determined that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." [Cal. Code Regs., tit. 22, § 12703(b).] This risk level is equivalent to an incremental cancer risk of 10 in one million, or 10×10^{-6}. The conservative nature of the screening assumptions means that actual cancer risks due to project emissions are likely to be considerably lower than those estimated. (Ex. 300, p. 4.7-6.)

If the screening analysis predicts no significant risks, then no further analysis is required. However, if the predicted risk is significant, then further analysis using more realistic, site-specific assumptions is performed to obtain a more accurate assessment of potential health risks. If the site-specific analysis confirms that the risk exceeds the significance level, then appropriate mitigation measures are necessary to reduce the risk to a less than significant level. If a refined analysis identifies a cancer risk that exceeds the significance level after all risk reduction measures have been considered, Energy Commission staff would not recommend approval of the project. (Ex. 300, p. 4.7-6.)

The record shows that the Applicant performed screening level risk assessments and concluded that no adverse health effects are expected from project construction or operation. Staff reviewed and verified the Applicant's conclusions.

1. Setting and Public Health Concerns

The project site is zoned for heavy industrial use with surrounding land being used for industrial and commercial activities and agriculture. (Ex. 300, p. 4.7-6.) Several sensitive receptor locations are within a six-mile radius of the site that house sensitive individuals. These locations house the elderly, school pupils, and individuals with respiratory diseases who are usually more sensitive to the effect of environmental pollutants than the general public. These locations include schools, residences, and hospitals. The nearest residence is in a mobile home park 900 feet southwest of the project site. (Exs. 1, p. 5.7-3, Appendix 5.1D; 300, pp. 4.7-6 – 4.7-7.)

According to the Applicant, there are no available studies on the specific health status of the potentially impacted population within the six-mile radius of potential impact. (Exs. 1, p 5.9- 6; 12; 300, p. 4.7-7.)

2. Meteorology and Existing Air Quality

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may increase. However, reduced vertical dispersion can result in greater horizontal travel before the plume would reach the ground, tending to reduce local exposure. (Ex. 300, p. 4.7-7.)

The OGS site is in an area whose climate is strongly influenced by the large-scale warming and sinking of the air in the semi-permanent subtropical high-pressure center over the Pacific Ocean. This high-pressure system blocks out most mid-latitude storms except in the winter when most of the area's 13 to 17 inches of rainfall occurs. The yearly maximum summer temperature varies from the mid-50s to the low- 90s while the winter temperature varies from the mid-30s to the high 50s. (Ex. 300, p. 4.7-7.) The **Air Quality** section of the Final Staff

Assessment presents a more detailed discussion of the area's meteorology as related to pollutant dispersion.

The OGS site is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Based on the levels of toxic air contaminants measured within the BAAQMD Ambient Air Toxics Monitoring Network, the BAAQMD calculated an air toxics-related background cancer risk of 143 in one million for the Bay Area for 2003. The pollutants 1, 3-butadiene and benzene, emitted primarily from mobile sources, were the two highest contributors to this risk and together accounted for over half of the total. Formaldehyde (which is emitted directly from vehicles and other combustion sources, such as the proposed energy project) was identified along with carbon tetrachloride and hexavalent chromium as the other major contributors.

The evidence indicates that use of reformulated gasoline in the Bay Area, in combination with implementation of other toxics reduction measures, has led to a decrease of ambient levels of toxic pollutants and associated cancer risks during the past few years. However, 2005 data from BAAQMD's Community Air Risk Evaluation Program identified diesel particulate matter as responsible for approximately 80 percent of this air toxics-related background cancer risk. (Ex. 300, p. 4.7-8.)

The criteria pollutant-related air quality for the project area is assessed in the **Air Quality** section of this Decision by adding the existing background levels (as measured at area monitoring stations), to the project-related levels, and comparing the resulting levels with the applicable air quality standards. Public health protection would be ensured only through specific technical and administrative measures that ensure below-standard exposures when the project is operating. These measures are discussed and imposed in the **Air Quality** section.

3. Construction Impacts and Mitigation

Construction of the project is expected to take place over a period of 33 months. (Ex. 1, p. 5.9-4.) The evidence contains an analysis of potential health effects during construction that could result from those from human exposure to the windblown dust from site excavation grading, and emissions from construction-related diesel-fueled equipment. (Exs. 1, pp. 5.1-12 – 5.1-14, Appendix 5.1A; 12; 300, p. 4.7-9.)

The dust-related impacts may result from exposure to the dust itself as PM10, or PM2.5, or exposure to any toxic contaminants that might be absorbed on to the dust particles. As more fully discussed in the **Waste Management** section of this Decision, results of the Applicant's Phase I and Phase II Environmental Site Assessments (ESAs) showed that despite a history of industrial activities in certain areas around the proposed site, there are no contaminated areas on site that would pose a health danger during construction. (Exs. 1, pp. 5.14-1 – 5.14-18; 300, p. 4.7-9.)[5]

To reduce potential fugitive dust-related impacts to less than significant levels, the Applicant will implement mitigation measures to ensure project compliance with BAAQMD Regulation 6, which limits the quantity of particulate matter in the atmosphere by imposing requirements for opacity, visible particles, particulate weight, and general operations. (Exs. 1, p. 5.1-40; 300, p. 4.7-9; 301.)

The exhaust from diesel-fueled construction and other equipment has been established as a potent human carcinogen. The evidence identifies the following construction-related diesel-fueled emission sources: gas turbines, auxiliary boiler, and fire pump diesel engine. (Exs. 1, p. 5.9-4; 12.)

To ensure that exposure to fugitive dust and diesel emissions and related cancer-related risks are reduced to insignificant levels, we have adopted Conditions of Certification **AQ-SC-3** through **AQ-SC-5**. These Conditions collectively require the project owner to implement measures to control fugitive dust and diesel exhaust, including watering excavation areas, use of ultra-low sulfur diesel fuel, and installation of oxidation catalysts and soot filters on diesel equipment. See discussion in the **Air Quality** section of this Decision for a further discussion of the mitigation measures.

4. Operation Impacts and Mitigation

The main health risk from OGS operations will be associated with emissions from its gas-fired combustion turbine generators and the diesel-fired fire pump. (Ex. 300, p. 4.7-9, Public Health Table 2.)

As noted in a publication by the South Coast Air Quality Management District, one property that distinguishes the air toxics of concern in this analysis from the

[5] However, as discussed in the **Waste Management** section, existing conditions at the OGS site include areas where prior site uses may have resulted in releases of hazardous substances of soil contamination. To address these potential impacts and reduce them to less than significant levels, we have imposed Conditions of Certification **WASTE-1**, **-2**, **-3**, and **-5**.

criteria pollutants is that the impacts from air toxics tend to be highest in close proximity to the source and quickly drop off with distance. This means that the levels of OGS's air toxics would be highest in the immediate area and decrease rapidly with distance. One purpose of this analysis, as previously noted, is to determine whether or not such exposures would be at levels of possible health significance as established using existing assessment methods. (Ex. 300, p. 4.7-9.)

The Applicant's estimates of the project's potential contribution to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment conducted according to procedures specified in the 1993 CAPCOA guidelines. Staff evaluated the results and validated the Applicant's findings. (Exs. 1, pp. 5.9-2 - 5.9-12, Appendix 5.1D; 12; 300, p. 4.7-12.)

Public Health Table 1 below summarizes the Applicant's results.

Public Health Table 1
Operational Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Noncancer	0.0807	1.0	No
Chronic Noncancer	0.021	1.0	No
Individual Cancer	3.50×10^{-6}	10.0×10^{-6}	No

Source: Ex. 300, FSA, Staff's summary of information from Oakley Generating Station 2009a pp. 5.9-3 through 5.9-10 and Appendix 5.1D.

As shown, the chronic hazard index for the maximally exposed individual is 0.021 while the maximum hazard index for acute effects is 0.0807. These values are well below Staff's recommended significance criterion of 1.0, suggesting that the pollutants in question are unlikely to pose a significant risk of chronic or acute noncancer health effects anywhere in the project area. (Ex. 300, pp. 4.7-11 – 4.7-12.)

The cancer risk to the maximally exposed individual from normal project operation is shown as 3.50 in one million, which is well below Staff's significance criterion of 10 in one million for this screening-level assessment. Thus, project-related cancer risk from routine operations would be less than significant for all individuals in the project area. (*Id*.)

These conservative assessments reflect the following facts: (a) the individual considered is assumed to be exposed at the highest possible levels to all the carcinogenic pollutants from the project for a 70-year lifetime, (b) all the

carcinogens are assumed to be equally potent in humans and experimental animals, even when their cancer-inducing abilities have not been established in humans, and (c) humans are assumed to be as susceptible as the most sensitive experimental animal, despite knowledge that cancer potencies often differ between humans and experimental animals. Only a relatively few of the many environmental chemicals identified so far as capable of inducing cancer in animals have been shown to also cause cancer in humans. (Ex. 300, p. 4.7-12.)

5. Legionnaires' Disease

Legionella is a bacterium ever-present in natural aquatic environments and widely distributed in man-made water systems. It is the principal cause of legionellosis, more commonly known as Legionnaires' disease, which is similar to pneumonia. Transmission to people results mainly from the inhalation or aspiration of aerosolized contaminated water. According to the evidence, untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems have been associated with outbreaks of legionellosis. (Ex. 300, p. 4.7-12.)

The State of California regulates recycled water used for cooling tower operations according to requirements in Title 22, section 60303, California Code of Regulations. These requirements mandate the use of chlorine or other biocides to minimize the growth of Legionella and other microorganisms. (Ex. 300, p. 4.7-12.) In addition, the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE 1998) emphasizes the need for such programs in its specifications for Legionellosis prevention. Also, the Cooling Tower Institute has issued guidelines for the best practices for control of Legionella (CTI 2000). Preventive maintenance includes effective drift eliminators, periodically cleaning the system as appropriate, maintaining mechanical components, and maintaining an effective water treatment program with appropriate biocide concentrations. (Ex. 300, p. 4.7-13.)

We find that implementation of Condition of Certification **PUBLIC HEALTH-1** will ensure the effective maintenance and bactericidal action necessary during the operation of the OGS cooling tower. This condition requires the project owner to prepare and implement a cooling water management plan to ensure that bacterial growth is kept to a minimum in the cooling tower. With the use of an aggressive antibacterial program, coupled with routine monitoring and biofilm removal, the potential for Legionella growth and dispersal will be reduced to less than significant levels.

6. Cumulative Impacts

A project may result in a significant adverse impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (Cal. Code Regs., tit.14, § 15130.)

Cumulative impacts could occur if impacts from the OGS were combined with those of other local or regional facilities. The Applicant considered the potential for cumulative impacts from the proposed OGS and other significant pollutant sources within a six-mile radius as a way of assessing the potential for significant health effects from emissions from identifiable pollutant sources in the immediate project vicinity. (Exs. 1; 12.) OGS and the existing or proposed area sources could thus be seen as contributing to the existing background levels thereby adding to the normal background cancer and noncancer impacts. The present approach to regulating such carcinogenic and non-carcinogenic additions is to ensure that they are maintained within insignificant levels from any new source. Such cumulative impacts are best assessed in terms of their potential for cancer and noncancer health impacts. (Ex. 300, p. 4.7-13.)

Applicant and Staff each conducted a cumulative impacts assessment, which is inherent in a public health assessment. According to Staff, and as summarized above, the maximum impact locations for the proposed OGS and similar sources would be the spot where pollutant concentrations would theoretically be highest. Even at this location, Staff does not expect any significant OGS-related changes in the lifetime risk to any person, given the calculated incremental cancer risk of only 3.50 in one million, which Staff regards as not potentially contributing significantly to the previously noted average lifetime individual cancer risk of 330,000 in one million.

The worst-case long-term noncancer health impact from the project (represented as a chronic hazard index of 0.021) is well below Staff's significance level of 1.0 at the location of maximum impact suggesting an insignificant contribution to the incidence of the area's noncancer health symptoms from cumulative toxic exposures. The cumulative impacts from emission of the criteria pollutants are addressed in the **Air Quality** section of this Decision.

The results of the parties' cumulative health risk assessments for cancer risk and chronic and acute hazard index values were consistent and indicate that the contribution of OGS is minimal and would not result in a significant cumulative impact to public health.

7. Environmental Justice Concerns

The public health analysis considered the low income/minority populations identified in the record (See, Exs. 1, Appen. 5.10A; 300, § 4.8, Socioeconomics Figure 1) and found no potential significant adverse public health impacts for any receptors, including environmental justice populations. The Applicant's risk assessments complied with all CARB and OEHHA guidelines that focus on protecting public health for the most sensitive individuals in the population. Using conservative (health-protective) exposure and toxicity assumptions, the assessments demonstrated that potentially exposed individuals - including sensitive receptors such as the elderly, infants, and people with pre-existing medical conditions - will not experience any acute or chronic significant health risk or any significant cancer risk as a result of that exposure.

8. Compliance with LORS

Public Health Table 2 below identifies the laws, ordinances, regulations, and standards (LORS) applicable to the OGS Project. Both the Applicant and Staff evaluated the project's compliance with these LORS. (Exs. 1, § 5.9; 300, § 4.7.)

Public Health Table 2
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Clean Air Act, section 112 (42 U.S. Code, section 7412)	Requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).
State	
California Health and Safety Code, sections 39650 et seq.	These sections mandate the California Air Resources Board (CARB) and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

California Health and Safety Code, section 41700	This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Code of Regulations, Title 22, section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system re-circulating water to minimize the growth of Legionella and other micro-organisms.
Local	
Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 5.	Requires safe exposure limits for Toxic Air Pollutants (TACs), use of Best Available Control Technology (BACT) and New Sources Review (NSR).

As discussed in the evidence and summarized our evaluation above, we find that the project will comply with the applicable LORS.

9. Agency and Public Comments

Several oral and written comments were received from the public during the March 15, 2011, hearing relating to public health. (3/15/11 RT 29-32, 39-40, 146-147, 147-150, 158.) Some comments questioned whether the project will adversely affect community health by, for example, leading to higher asthma rates for children, higher respiratory failure rates for elders, reproductive health issues, and higher cancer rates.

We first note that the evidence identifies the sensitive receptor locations within a six-mile radius of the site. Sensitive receptor locations are those housing sensitive individuals such as the elderly, school pupils and individuals with respiratory diseases who, as previously noted, are usually more sensitive to the effects of environmental pollutants than the general public. In this and most cases, these locations include schools pre-schools, daycare centers, schools, nursing homes, medical centers, and hospitals. The nearest residence is in a mobile home park 900 feet to the southwest (See, e.g., Ex. 1, p. 5.7-3). According to census figures from 2000, the total population within the six-mile radius of the proposed site is 138,442 persons and the total minority population is 57,477 persons, or about 42 percent of the total population. (See Ex. 300,

Socioeconomics Figure 1.) The population below poverty level was identified as 7.33 percent of the total.

Both Staff and the Applicant affirmed that there are no available studies on the specific health status of the potentially impacted population within the six-mile radius of potentially significant impact. Rather, BAAQMD has undertaken ongoing studies and programs to minimize the potential for areas with higher toxic emission levels. (Exs. 1, p. 5.9-6; 12; 300, pp. 4.7-6-4.7-7.) Thus, there is no known empirical data upon which to determine the extent to which asthma and other respiratory ailments are prevalent in the region and the causes. Even in the absence of this empirical data, the Applicant and Staff performed modeling and analysis to assess the project's potential to adversely affect sensitive receptor locations. In this regard, the evidence of record (as summarized above), establishes that such risks from construction and operation activities are low. (See, e.g., Exs. 1, § 5.9; 300, pp. 4.7-8 - 4.7-14, § 4.1.)

For instance, the project must implement mitigation measures necessary to minimize construction-related fugitive dust as required by BAAQMD Regulation 6. Because dust-related impacts could result from dust inhalation as PM10, or PM2.5, these emissions will be minimized to less than significant levels with implementation of the Conditions of Certification. Further, the exhaust from diesel-fueled construction and other equipment has been established as a potent human carcinogen and as a result, construction-related emission levels could be regarded as possibly adding to the carcinogenic risk of specific concern in this analysis. The control measures specified in **Air Quality** Conditions of Certification **AQ-SC3** through **AQ SC-5** will adequately minimize this construction-related cancer risk.

The evidence includes a thorough analysis of health-related impacts of toxic emissions and shows that the operations toxic air emissions do not reach or surpass the significance thresholds. (See, e.g., Ex. 300, pp. 4.7-9 – 4.7-12.) The project is required nonetheless to comply with specific technical and administrative public health protection measures that ensure below-standard exposures when the project is operating. These measures are contained in the **Air Quality** Conditions of Certification.

And, as discussed in the **Air Quality** section of this Decision, in addition to implementing other Conditions of Certification, specifically with respect to public health, the project owner shall enter into an agreement with the Bay Area Clean Air Foundation for the project owner to pay $32,750 per tons per year of project

PM10, PM2.5 and SO_X emissions. As stated in Condition of Certification **AQ-SC8**, "[t]he funds contributed by the project owner shall fund emission reduction projects based on the proximity of the emissions reduction project to the project site and the relative health benefit to the local community surrounding the project site ..."

Finally, because the potential impacts would be at insignificant levels, there would be no environmental justice issues arising from OGS operation. Thus, the evidence of record establishes the public health and related environmental justice concerns will be minimized to less than significant levels with the Conditions of Certification herein.

FINDINGS OF FACT

Based on the evidence, we make the following findings and conclusions:

1. Construction and operation of the project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Emissions of criteria pollutants, as discussed in the **Air Quality** section of this Decision, will be mitigated to levels consistent with applicable state and federal standards.

3. Emissions of noncriteria pollutants or toxic air contaminants are assessed according to procedures developed by state and federal regulatory agencies to evaluate potential health effects to protect the most sensitive individuals in the population.

4. The accepted method used by state and federal regulatory agencies in assessing the significance for both acute and chronic non-carcinogenic public health effects of noncriteria pollutants is known as the hazard index method. A similar method is used for assessing the significance of potential carcinogenic effects based on incremental exposure levels.

5. The evidence contains a screening level health risk assessment of the project's potential health effects due to emissions of toxic air contaminants (TACs).

6. The health risk assessment is based on worst case assumptions using the highest emission factors, assuming the worst weather conditions, and calculating effects at the point of maximum impact so that actual risks are expected to be much lower at any other location.

7. Exposure to diesel particulate emissions from construction equipment is short-term and will not result in long-term carcinogenic or non-carcinogenic health effects.

8. Exposure to construction-related diesel particulates will be mitigated to the extent feasible by implementing measures to reduce equipment emissions.

9. Exposure to particulates in fugitive dust due to excavation and construction activities will be mitigated to insignificant levels by implementing measures to reduce dust production and dispersal.

10. The health risk assessment for exposure to TAC emissions during project operations confirmed that acute and chronic calculated risks fall below the significance level of 1.0, and that the cancer risk is below the significance level of 10 in one million.

11. Cumulative impacts from noncriteria pollutants were analyzed in accordance with CEQA requirements and are not expected to be significant.

12. Since the project's contributions to health risks are well below the significance level, the project is not expected to contribute significantly to a cumulative health impact.

CONCLUSIONS OF LAW

1. We therefore conclude that emissions of noncriteria pollutants from the construction and operation of the OGS Project do not pose a significant direct, indirect, or cumulative adverse public health risk.

2. The project will comply with the applicable laws, ordinances, regulations, and standards (LORS) specified in the appropriate portion of **Appendix A** of this Decision with implementation of the Condition of Certification.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall develop and implement a Cooling Water Management Plan that is consistent with either Staff's *Cooling Water Management Program Guidelines* or the Cooling Technology Institute's *Best Practices for Control of Legionella* guidelines.

Verification: At least 30 days prior to the start of cooling tower construction, the Cooling Water Management Plan shall be provided to the Compliance Project Manager for review and approval.

D. WORKER SAFETY AND FIRE PROTECTION

Workers at industrial facilities are exposed to potential safety and health hazards on a daily basis. Federal and state laws and standards related to industrial workers are designed to ensure that these hazards are minimized to insignificant levels. This topic analyzes whether the project's safety and health plans are in accord with applicable laws, ordinances, regulations, and standards (LORS) and adequate to protect industrial workers from hazardous working conditions. This topic also discusses the availability and adequacy of fire protection and emergency response services, as well as the mitigation measures necessary to ensure adequate response.

Worker Safety and Fire Protection Table 1 below identifies the applicable LORS.

Worker Safety and Fire Protection Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Title 29 U.S. Code (USC) section 651 et seq (Occupational Safety and Health Act of 1970)	This act mandates safety requirements in the workplace with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC § 651).
Title 29 Code of Federal Regulation (CFR) sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations)	These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.
Applicable Law	**Description**
Federal (cont.)	
29 CFR sections 1952.170 to 1952.175	These sections provide federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the federal requirements found in 29 CFR sections 1910.1 to 1910.1500.
State	
Title 8 California Code of Regulations (Cal Code Regs.) all applicable sections (Cal/OSHA regulations)	These sections require that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.

24 Cal Code Regs. section 3, et seq.	This section incorporates the current addition of the California Building Code.
Health and Safety Code section 25500, et seq.	This section presents Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.
Health and Safety Code sections 25500 to 25541	These sections require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.
Local (or locally enforced)	
2007 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9)	National Fire Protection Association (NFPA) standards are incorporated into the California Fire Code. The fire code contains general provisions for fire safety, including road and building access, water supplies, fire protection and life safety systems, fire-resistive construction, storage of combustible materials, exits and emergency escapes, and fire alarm systems. Enforced by the East Contra Costa Fire Protection District.

Source: Ex. 300

The evidence on this topic was undisputed. (3/15/11 RT 59-61, 67-77; Exs. 1, §5.16, 46; 50; 55, 57[1]; 300, § 4.14.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Worker Safety

Industrial environments are potentially dangerous during construction, operation, and demolition activities. Workers at the Oakley Generating Station (OGS) will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. Potential injuries and death could result from falling, tripping, burns, lacerations, falling equipment or structures, chemical spills, hazardous waste, fires, explosions, electrical sparks, and electrocution. (Exs. 1, pp. 5.16-1 - 5.16-5; 300, p. 4.14-4.)

Both federal and state Occupational Safety and Health Administration (OSHA and Cal-OSHA) LORS require the project owner to adopt well-defined policies and procedures, training programs, hazard recognition, and controls to minimize

[1] Intervener Sarvey offered Exhibit 404 relating to Worker Safety and Fire Protection but withdrew it after entering into a joint stipulation with the Applicant and Staff. **(**3/15/11 RT 59-60, 61, 77; Ex. 57.) Pursuant to the stipulation, the parties agreed that "the inclusion of Condition of Certification **HAZ-9** contained in the FSA addresses Intervener Sarvey's concerns relating to Worker Safety." (Ex. 57, pp. 3-4.) As discussed in the **Hazardous Materials Management** section of this Decision, we have adopted Staff-proposed Condition of Certification **HAZ-9**.

injuries and to protect the health of on-site workers. (Ex. 300, 4.14-2., Worker Safety and Fire Protection Table 1.)

The evidence provides extensive details on the worker safety and health programs required by applicable law and the project-specific safety measures necessary to protect on-site workers. Specifically, the project owner must develop and implement a "Construction Safety and Health Program" and an "Operations and Maintenance Safety and Health Program," both of which must be approved by the Energy Commission's Compliance Project Manager (CPM) prior to project construction and operation. A separate "Injury and Illness Prevention Program," a "Personal Protective Equipment Program," an "Emergency Action Plan," a "Fire Prevention Plan," and other general safety procedures are required for both the construction and operation phases of the project. (Exs. 1, pp. 5.16-5 – 5.16-16; 300, pp. 4.14-4 - 4.14-8.)

Conditions of Certification **WORKER SAFETY-1** and **-2** ensure that these measures will be developed and implemented in compliance with applicable LORS. Under **WORKER-SAFETY-1**, before the start of demolition and site preparation, the project owner must provide the CPM with a Project Construction Safety and Health Program that contains the following components: Construction Personal Protective Equipment Program, Construction Exposure Monitoring Program, Construction Injury and Illness Prevention Program, Construction Emergency Action Plan, and Construction Fire Prevention Plan.

WORKER-SAFETY-2 requires the project owner to submit a copy of the Project Operations and Maintenance Safety and Health Program to the CPM. This document must include the following components: Operation Injury and Illness Prevention Plan, Emergency Action Plan, Hazardous Materials Management Plan, Fire Prevention Plan, and Personal Protective Equipment Program.

As more fully discussed in the **Waste Management** section of this Decision, to address worker health and safety related to potential soil contamination that could be encountered during project-related excavation and construction, we have adopted **WASTE-1** and **WASTE-2**. These conditions collectively require a registered professional engineer or geologist to oversee soil excavation and grading to ensure proper handling and disposal of contaminated soil.

OSHA and Cal-OSHA standards encourage employers to monitor construction worker safety by employing a "competent person" who has experience enforcing workplace safety standards, has the ability to identify hazards relating to specific

construction activities, and has authority to take appropriate action. To implement this safe workplace policy during project construction, Condition **WORKER SAFETY-3** requires the project owner to employ a power plant Construction Safety Supervisor to coordinate and implement the Construction Safety and Health Programs, and to investigate any safety-related incidents and emergency responses. (Ex. 300, pp. 4.14-9.)

To further reduce workplace hazards during project construction, the project owner must also employ a professional Safety Monitor. The Safety Monitor will report to the Chief Building Official (CBO) and the CPM, track compliance with OSHA/Cal-OSHA regulations, and serve as an on-site OSHA expert. The Safety Monitor is also responsible for auditing safety compliance and ensuring that safety procedures are implemented during construction, commissioning, and the transition to operational status. (Ex. 300, p. 4.14-10.) Implementation of Condition **WORKER SAFETY-4** will ensure that the Safety Monitor performs the duties described in the evidentiary record.

In the event of a medical emergency at the project site, Condition **WORKER SAFETY-5** requires the project owner to maintain a portable automatic external defibrillator on-site and ensure its availability during construction and operation, and to train appropriate personnel on its use.[2] (Ex. 300, p. 4.14-12.)

2. Fire Protection and Emergency Response

Project construction and operation pose the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, hydraulic fluid, mineral oil, insulating fluid or flammable liquids, explosions, and over-heated equipment represent serious fire hazards.

The project will rely upon both local fire protection services and on-site fire protection systems, which provide the first line of defense for such occurrences. (Exs. 1, pp. 5.16-16 - 5.16-17; 300, pp. 4.14-1 - 4.14-12.) The construction Fire Prevention Program required by Condition **WORKER SAFETY-1** must be consistent with applicable LORS and specify measures to minimize the likelihood of fires during construction, including the locations of portable fire extinguishers,

[2] Testimony indicates that the potential for both work-related and non work-related heart attacks exists at power plants. The quickest medical intervention can be achieved with the use of an onsite defibrillator. Many modern industrial and commercial enterprises maintain defibrillators for emergency use. We therefore endorse this equipment as an appropriate safety and health precaution. (Ex. 300, p. 4.14-12.)

safety procedures, hazardous materials clean-up procedures, and worker training.

The operation Fire Prevention Program required by Condition **WORKER SAFETY-2** ensures that the project will conform with applicable fire safety LORS. Evidence indicates that during operation, the project will meet the fire protection and suppression requirements of the California Fire Code, all applicable NFPA standards (including Standard 850 addressing fire protection at electric generating plants), and all Cal-OSHA requirements. These fire standards require on-site fire suppression components to include both fixed and portable fire extinguishing systems located throughout the site.

The primary firewater source would be a connection to the Diablo Water District potable water distribution system. The secondary source of fire protection water would be an on-site fire/service water storage tank, sized in accordance with NFPA guidelines to provide two hours of protection for the on-site worst-case single fire. Electric motor-driven and a diesel engine-driven fire pumps would be provided to pump water from the on-site storage tank.

A fixed water sprinkler system will be installed in areas of risk, including administrative and control buildings, transformers and turbine lube oil system, in accordance with NFPA requirements and local fire codes. A carbon dioxide fire protection system will be provided for each of the combustion turbine generators and accessory equipment. The system will include fire detection sensors to trigger alarms and turn off ventilation, close ventilation openings, and automatically actuate the protection system.

The fixed fire protection system would have fire detection sensors and monitoring equipment that would trigger alarms and automatically actuate the suppression systems. In addition to the fixed fire protection system, appropriate class of service portable extinguishers and fire hydrants/hose stations would be located throughout the facility at code-approved intervals. These systems are standard requirements of the NFPA, and the California Fire Code (CFC). Staff independently determined that the systems will ensure adequate fire protection and also consulted with the ECCFPD regarding the adequacy of the project's on-site fire protection. (Exs. 1, pp. 2-30, 2-36; 300, pp. 4.14-11 – 4.14-12.)

While the evidence indicates that compliance with applicable LORS will be adequate to ensure protection from all fire hazards, Conditions of Certification **WORKER SAFETY-1** and **-2** nonetheless require the project owner to provide

the final Fire Protection and Prevention Programs to the CPM and ECCFPD prior to construction and operation of the project for these entities to confirm the adequacy of the proposed fire protection measures.

OGS will be served by the East Contra Costa Fire Protection District (ECCFPD). Station #93, located at 212 Second Street, Oakley, is closest to the OGS site and approximately three miles southeast. The total response time to the site would be approximately five minutes. ECCFPD Station #81, located about 3.5 miles away at 315 West Tenth Street in Antioch, would respond if necessary under an aid agreement with ECCFPD. Station #81 would respond to the site in approximately seven minutes. ECCFPD #88, located about 5.1 miles away, could also provide assistance with a total response time of seven minutes. Additional mutual aid could be provided by other ECCFPD stations as necessary. (Exs. 1, pp. 5.10-10, 5.16-16- 5.16-17; 300, p. 4.14-3.)

In the event of a hazardous materials incident, ECCFPD would be the first responder but under mutual aid agreements could call upon Hazmat Teams at Richmond and San Ramon Fire Departments for additional resources. The ECCFPD hazmat team is equipped to address an incident at OGS and could respond in 30 minutes during the day to one hour during off hours. (Ex. 1, p. 5.10-10; 300, p. 4.14-3.)

Primary access to the site would be through an entrance from Bridgehead Avenue. A secondary access point for fire and emergency services would be provided by an access road from Wilbur Avenue. This road is approximately 900 feet north of the main entrance and which provides access to the OGS site through the DuPont property from the north-eastern boundary. (Exs. 46, pp. 20, 50, 23; 300, p. 4.14-6.)

3. Cumulative Impacts

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Resources Code § 21083, Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c), 15130, 15335.)

The evidence establishes that Staff reviewed the potential for the construction and operation of the OGS combined with existing industrial facilities and expected new facilities (Willow Pass Generating Station in Pittsburg and Marsh

Landing Generating Station, north of Antioch) to determine impacts on the fire and emergency service capabilities of the ECCFPD. According to ECCFPD Acting Fire Chief Hugh Henderson, the fire district is adequately staffed and equipped to respond to incidents at the OGS and he does not anticipate that the proposed facility would adversely impact the department. Moreover, the evidence indicates that lack of unique fire hazards associated with a modern natural gas-fired power plant such as OGS, will not pose a significant incremental or cumulative burden on the department's ability to respond to a fire or medical emergency. (Ex. 300, pp. 4.14-12 – 4.14-13.)

As discussed in the **Socioeconomics** section of this Decision, the project owner is required to pay the City of Oakley Fire Facilities Impact Fee established by Ordinance No. 09-01. This fee is required to finance needed fire-fighting facilities and improvements (as determined by the City) and to pay for each development's fair share of the construction and acquisition costs of those improvements. This fee is based on the square footage of "building structures" such as office, control rooms, bathrooms, meeting rooms, and so on. This fee is expected to be $160 per 1,000 square feet of the project's building structures. (See Ex. 300, pp. 4.8-2, 4.8-9.)

Thus, the evidence shows that ECCFPD and its mutual aid emergency response teams are adequately equipped to respond to fire, rescue, or EMS emergencies in a timely manner at the OGS site without any impacts on their capabilities to service other emergencies. The evidence similarly shows that Contra Costa County Hazmat Team is adequately equipped to respond to haz mat impacts in a timely manner at the OGS site without any impacts on their capabilities to service other emergencies.

4. Compliance with LORS

Both the Applicant and Staff identified the applicable LORS and discuss how OGS will comply with each. (Exs. 1, §5.16; 300, §. 4.14 [Table 1].) As summarized above, we evaluated the evidence and the application of specified LORS to the OGS Project, and find that with implementation of the Conditions of Certification below, the project will comply with the applicable LORS.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. Industrial workers at the project site and along the linear corridors will be exposed to potential safety and health hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs consistent with applicable federal and state LORS for both the construction and operation phases of the project.

3. The project will employ an on-site professional Construction Safety Supervisor and a Construction Safety Monitor to ensure compliance with the Construction Safety and Health Program.

4. The project will maintain a portable automatic external defibrillator on-site and train personnel to use it in the event of a medical emergency.

5. The project will include on-site fire protection and appropriate fire suppression systems consistent with applicable LORS as the first line of defense in the event of a fire.

6. The East Contra Costa Fire Protection District (ECCFPD) will provide fire protection and emergency response services to the project site, including hazmat services.

7. Contra Costa County Hazmat will provide additional hazmat response capability if ECCFPD requires assistance.

8. The project will provide an access entry gate to allow emergency vehicle access to the site.

9. Construction and operation of the OGS Project will not result in any direct, indirect, or cumulative impacts on fire protection services in the project vicinity.

10. The project will not have significant impacts on local fire protection services.

11. Construction and operation of OGS will not result in any direct, indirect, or cumulative impacts on fire protection services in the project vicinity

12. Implementation of the Conditions of Certification below will ensure the OGS Projects' compliance with applicable LORS.

CONCLUSIONS OF LAW

1. We therefore conclude that with implementation of the Conditions of Certification listed below and the mitigation measures described in the evidentiary record, the OGS Project will not result in significant health and safety impacts to on-site workers.

2. We further conclude that the mitigated OGS Project, as described in the evidentiary record, will comply with all applicable laws, ordinances, regulations, and standards listed for Worker Safety and Fire Protection as set forth in the appropriate portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

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

- a Construction Personal Protective Equipment Program;
- a Construction Exposure Monitoring Program;
- a Construction Injury and Illness Prevention Program;
- a Construction Emergency Action Plan; and
- a Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable safety orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the East Contra Costa Fire Protection District for review and comment prior to submittal to the CPM for approval.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM of any comments received from the East Contra Costa Fire Protection District on the Construction Fire Prevention Plan and Emergency Action Plan.

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

- an Operation Injury and Illness Prevention Plan;
- an Emergency Action Plan;

- Hazardous Materials Management Program;
- Fire Prevention Plan (8 Cal Code Regs., § 3221); and
- Personal Protective Equipment Program (8 Cal Code Regs., §§ 3401—3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and comment concerning compliance of the programs with all applicable safety orders. The Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the East Contra Costa Fire Protection District for review and comment.

Verification: At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy to the CPM of any comments received from the East Contra Costa Fire Protection District on the Operations Fire Prevention Plan and Emergency Action Plan.

WORKER SAFETY-3 The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
- assure that all construction and commissioning workers and supervisors receive adequate safety training;
- complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and
- assure that all the plans identified in Conditions of Certification **WORKER SAFETY-1** and **-2** are implemented.

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

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

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

WORKER SAFETY-4 The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification **WORKER SAFETY-3**, and for implementing all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

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

WORKER SAFETY-5 The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during demolition, construction, and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During demolition, construction, and commissioning, the following persons shall be trained in its use and shall be on site whenever the workers that they supervise are on site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM proof that the owner has acquired or arranged delivery of a portable automatic external defibrillator (AED) for use on site during demolition, construction, and commissioning, and a copy of the training and maintenance program for review and approval.

E. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the OGS Project will create significant impacts to public health and safety resulting from the use, handling, storage, or transport of hazardous materials. Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts. These include local meteorological conditions, terrain characteristics, and the proximity of population centers and sensitive receptors. Power plant facilities are also subject to a number of laws, ordinances, regulations, and standards (LORS) related to hazardous materials.

Hazardous Materials Management Table 1 below identifies the applicable LORS.

Hazardous Materials Management Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	Established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on risk management plans (42 USC §112(r)	Requires states to implement a comprehensive system informing local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.800	The U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters.

Applicable Law	Description
Title 49, Code of Federal Regulations, Part 190	Outlines gas pipeline safety program procedures.
Title 49, Code of Federal Regulations, Part 191	Addresses transportation of natural and other gas by pipeline: annual reports, incident reports, and safety-related condition reports. Requires operators of pipeline systems to notify the DOT of any reportable incident by telephone and then submit a written report within 30 days.
Title 49, Code of Federal Regulations, Part 192	Addresses transportation of natural and other gas by pipeline and minimum federal safety standards, specifies minimum safety requirements for pipelines including material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also contains regulations governing pipeline construction (which must be followed for Class 2 and Class 3 pipelines) and the requirements for preparing a pipeline integrity management program.
Federal Register (6 CFR Part 27) interim final rule	A regulation of the U.S. Department of Homeland Security that requires facilities that use or store certain hazardous materials to submit information to the department so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented.
State	
Title 8, California Code of Regulations, section 5189	Requires facility owners to develop and implement effective safety management plans that ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the Risk Management Plan (RMP) process.
Title 8, California Code of Regulations, section 458 and sections 500 to 515	Sets forth requirements for the design, construction, and operation of vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes, including the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, the American National Standards Institute (ANSI) K61.1 and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia.
California Health and Safety Code, section 25531 to 25543.4	The California Accidental Release Program (CalARP) requires the preparation of a Risk Management Plan (RMP) and off-site consequence analysis (OCA) and submittal to the local Certified Unified Program Agency for approval.
California HSC Sections 25270 through 25270.13	Requires the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan if 10,000 gallons or more of petroleum is stored on-site. These regulations also require the immediate reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Authority (CUPA).

Applicable Law	Description
California Health and Safety Code, section 41700	Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
California Public Utilities Commission General Order 112-E and 58-A	Contains standards for gas piping construction and service.
Local	
Contra Costa County Zoning Ordinance 98-48	Requires a Safety Plan and a RMP.
Uniform Fire Code Article 79 and 80	Require secondary containment, monitoring and treatment for accidental releases of toxic gases.

The evidence presented on this topic was undisputed except for issues surrounding the OGS Project's potential impacts to PG&E's natural gas pipeline, Lines 303 and 400. (3/15/11 RT 67-77, 3/25/11 RT 1, 12, 13-15, 48 – 66; Exs. 1, § 5.5, Appendix 5.5; 30; 32; 46; 50; 55; 60; 300; 304; 408; 410-414.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Setting

The OGS 21.95 acre plant site is bounded to the west by Pacific Gas and Electric Company's (PG&E) Antioch Terminal, a large natural gas transmission hub; to the north by industrial DuPont property; to the east by DuPont's titanium dioxide landfill area; and to the south by the BNSF railroad. Surrounding land uses include the former DuPont Oakley manufacturing site and marinas along the San Joaquin River to the north, power plants owned by PG&E and Mirant to the west; vineyards and mixed commercial, industrial, and residential uses to the south, and vineyards and residential uses to the east. (Ex. 300, p. 4.4-5.)

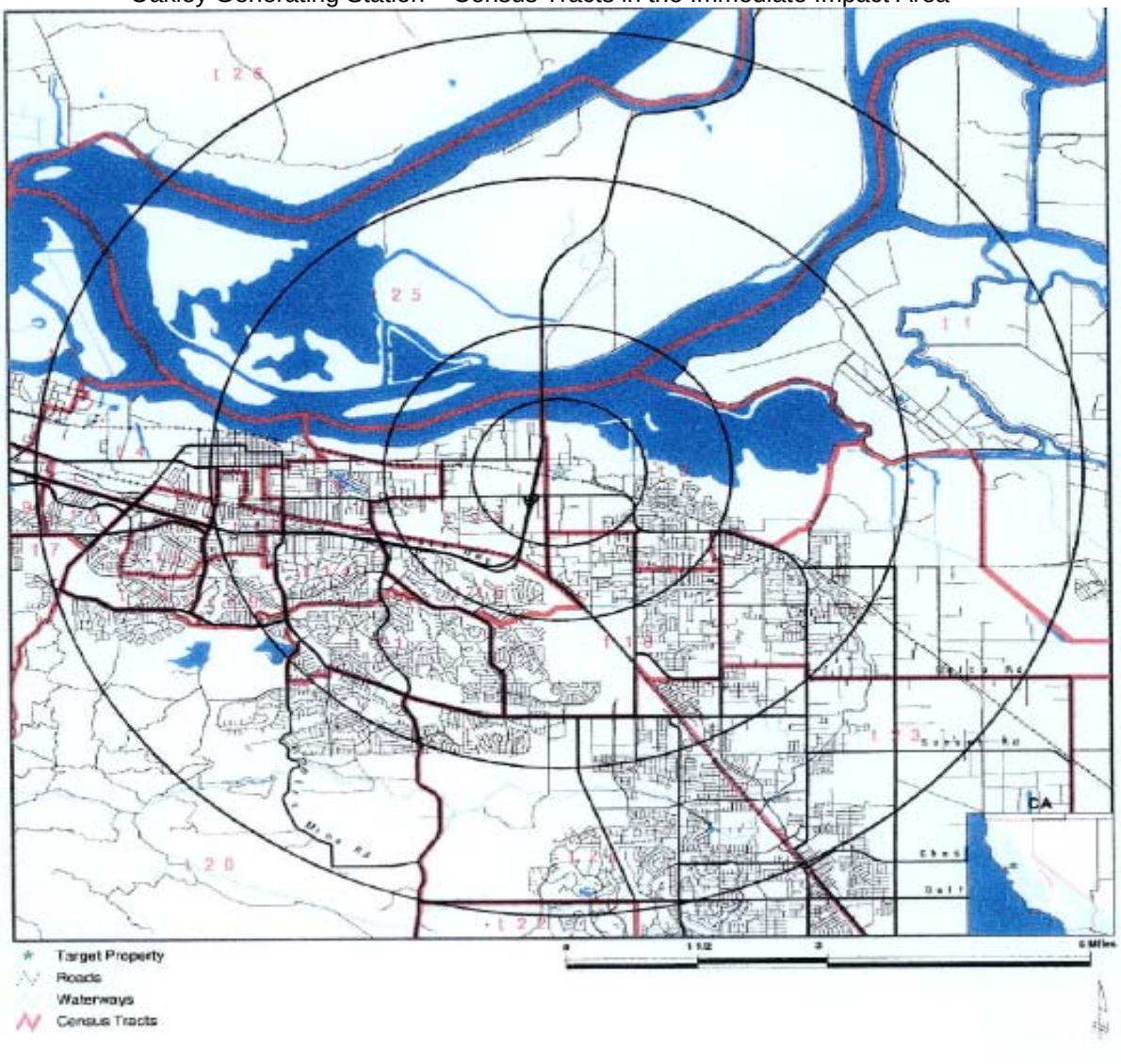
Approximately 556 sensitive receptors (mainly childcare facilities but also including schools, hospitals, and long-term care facilities) are within a six-mile

radius of the OGS site. The nearest residences are a trailer park located on Bridgehead Road, approximately 0.2 miles southwest of the project site. The nearest school to the project site is approximately 0.8 miles south-southeast. The nearest hospital/long-term health care facility is approximately five miles southwest of the project site. (Ex. 1, p. 5.5-1, Appendix 5.1D.)

Hazardous Materials Management Figure 1 shows the locations of these sensitive receptors in relation to the project site.

Hazardous Materials Management - Figure 1

Oakley Generating Station – Census Tracts in the Immediate Impact Area



Source: Ex. 1, AFC

2. Use of Hazardous Materials

The evidence establishes that the OGS Project will use hazardous materials during construction and operation. Hazardous materials used during the construction phase will include paint, paint thinner, flushing and cleaning fluids, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, antifreeze, and pesticides. Hazardous materials, such as cleaning agents, lube oil, mineral insulating oil, water treatment chemicals and other chemicals will be present at the facility during operation. (Exs. 1, pp. 5.5-1 - 5.5-2; 300, p. 4.4-8.) A list of all hazardous materials proposed for use and storage at the OGS facility is provided in **Hazardous Materials Management Appendix B** at the end of this section.

The evidence evaluates the risks posed by the OGS Project's use of hazardous materials. Staff's assessment included the following elements in the order presented:

- Review of the types and amounts of chemicals proposed for on-site use, and a determination of the need and appropriateness of their use.
- Removal from further consideration those chemicals that will be used in small amounts, or whose physical state is such that there is virtually no chance that a spill will migrate off the site and impact the public.
- Review and evaluation of measures proposed by the Applicant to prevent spills, including engineering controls such automatic shut-off valves and different sized transfer-hose couplings, as well as administrative controls such as worker training and safety management programs.
- Review and evaluation of measures proposed by the Applicant to respond to accidents, including engineering controls such as catchment basins and methods to keep vapors from spreading, as well as administrative controls such as training emergency response crews.
- Analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials, even with the mitigation measures proposed. (Ex. 300, p. 4.4-7.)

Both the Applicant's and Staff's assessments considered the following CEQA significance criteria:

- Whether the project would create a significant hazard to the public or environment through the routine transport or use of hazardous materials

- Whether the project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Whether the project would emit hazardous emissions or involve handling hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school. (CEQA Guidelines, § 15002, subd. (g), Appendix G.)

a. Small Quantity Hazardous Materials

The evidence shows that none of the small quantity hazardous materials used during OGS construction and operation poses a significant potential for off-site impacts. This is due to the minimal quantities involved, their infrequent use, and onsite containment by way of temporary berms used by contractors. Furthermore, petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel that will be used by the project are all very low volatility and represent limited off-site hazards even in larger quantities. (Ex. 300, pp. 4.4-7 - 4.4-8.)

Appendix B (incorporated in Condition of Certification **HAZ-1** at the end of this section) lists the hazardous materials that will be used and stored on-site. Condition **HAZ-1** prohibits the project owner from using hazardous materials not listed in **Appendix B**, or storing them in greater quantities than specified, without prior approval of the Energy Commission's Compliance Project Manager. None of the listed materials, except for natural gas and aqueous ammonia as discussed below, pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility.

b. Large Quantity Hazardous Materials

i. Use and Handling of Natural Gas

The project will involve the handling of large amounts of natural gas. Due to its tendency to disperse rapidly, natural gas is less likely to cause explosions than fuel gases such as propane or liquefied petroleum gas. Even though the project will use significant quantities of gas, the gas will not be stored onsite. Thus, the use of gas at the site poses risk of fire and explosion because of its flammability. (Ex, 300, pp. 4.4-2, 4.4-8.)

The risk of a fire and/or explosion on site can be reduced to insignificant levels through adherence to applicable codes and the development and implementation

of effective safety management practices. Purging and cleaning of onsite fuel gas piping will be done in accordance with the current version of NFPA 850, which governs construction and fire protection of natural gas fired power plants. In addition, in June 2010, the United States Chemical Safety and Hazard Board (CSB) issued Urgent Recommendations to the United States Occupational Safety and Health Administration (OSHA), the National Fire Protection Association (NFPA), the American Society of Mechanical Engineers (ASME), and major gas turbine manufacturers to make changes to their respective regulations, codes, and guidance to require the use of inherently safer alternatives to natural gas blows for the purposes of pipe cleaning. Recommendations were also made to the fifty states to enact legislation applicable to power plants that prohibits flammable gas blows for the purposes of pipe cleaning. In accordance with those recommendations, Condition of Certification **HAZ-9** prohibits the project owner from allowing any fuel gas pipe cleaning activities on site, either before placing the pipe into service or at any time during the lifetime of the facility, that involve "flammable gas blows" where natural (or flammable) gas is used to blow out debris from piping and then vented to atmosphere. The project owner may only use an inherently safer method involving a non-flammable gas (e.g. air, nitrogen, and steam) or mechanical pigging. (Ex. 300, p. 4.4-9.)

In addition, all fuel gas pipe purging activities shall vent any gases to a safe location outdoors, away from workers and sources of ignition. Fuel gas pipe cleaning and purging shall adhere to the provisions of most current versions of the National Fuel Gas Code (NFPA 54) including all Temporary Interim Amendments. (Ex. 300, p. 4.4-9.)

ii. Natural Gas Pipeline Safety

The OGS will require construction of one or two offsite pipelines to supply natural gas to the project site. The primary line – a new 300-foot-long, 6- to 10-inch diameter pipeline – would receive gas from PG&E's Antioch Terminal, which is a major high-pressure natural gas transmission pipeline hub that borders the OGS site. PG&E's Line 303 will serve this pipeline. Line 303 passes through the southwest corner of the OGS site as it enters the Antioch Terminal from the south. The tap to Line 303 will be located either in the southwest corner of the OGS site or in the Antioch Terminal. From this tap, natural gas will be delivered to the site via a new 300-foot-long, 6- to 10-inch-diameter pipeline. The pipeline will terminate in a PG&E gas metering yard located inside the OGS, west of the plant switchyard. (Ex. 300, pp. 4.4-2, 4.4-8- 4.4-9.)

If the project owner chooses to include a secondary natural gas supply, this supply would be provided by way of a new 410-foot long, 6- to 10-inch-diameter pipeline connecting to PG&E's Antioch Terminal Line 400, which passes through the OGS site and enters the northeast corner of the Antioch Terminal. (*Id*.)

Hazardous Materials Management Figure 2 shows the pipeline routes.

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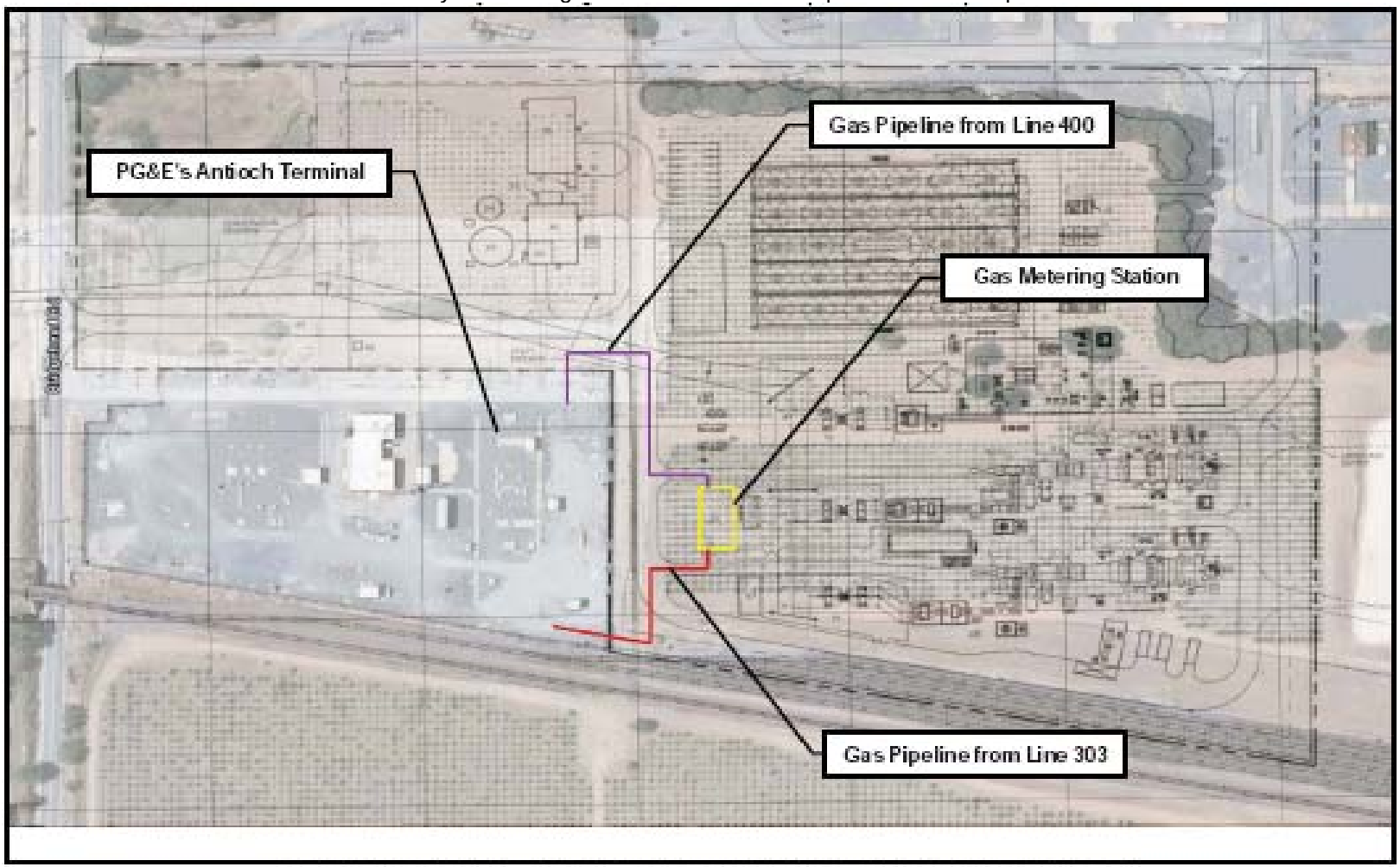
Hazardous Materials Management Figure 2

Oakley Generating Station – Natural Gas Pipeline Routes Map



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 4.0-1

Source: Ex. 300, FSA

PG&E will construct, own, and operate the new pipeline(s) pipelines in accordance with California Public Utilities Commission (CPUC) General Order 112 standards and federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192. (Exs. 1, § 4.0; 300, p. 4.4-9.) Compliance with these LORS should ensure minimal risks of pipeline failure.

However, in light of recent publicly noticed events pertaining to the PG&E gas transmission line rupture and fire in San Bruno, California on September 9, 2010, the Energy Commission determined on March 9, 2011, that pending and future AFC proceedings must include an enhanced assessment of natural gas pipeline supply/availability and safety that specifically addresses and known or anticipated risks of project interconnection with existing natural gas pipelines. The OGS AFC Committee subsequently directed the parties in this proceeding to address seven questions pertaining to PG&E lines 303 and 400 and the project's interconnection to these lines.

The Applicant's and Staff's pipeline safety witnesses (Harvey Haines and Geoff Lesh, respectively) were shown to have particular knowledge and experience in evaluating pipeline safety. (Exs. 60; 304.) Although Intervenor Sarvey's witness (himself) lacks the experience and general experience of Haines and Lesh on the topic of pipeline safety, Sarvey nonetheless demonstrated particular knowledge relating to CPUC proceedings and obtaining documents made available by the CPUC as they pertain to current PG&E pipeline safety issues. (Ex. 408, pp. 32-33; 401-414; 3/25/11 RT 30-47, 61-65.) Consequently, during the March 25, 2011, continued hearing, the Committee accepted Haines, Lesh, and Sarvey as pipeline safety witnesses as qualified to present evidence and testimony[1]. Even so, the Committee is persuaded that the educational and experiential qualifications of the Applicant's and Staff's witnesses entitle their testimony to greater weight than the testimony submitted by Sarvey.

The seven questions posed by the Committee are presented below with a summary of the parties' responses. With few exceptions, the parties submitted substantially similar responses.

[1] The Committee admitted Sarvey's testimony and Exhibits 408, 410, 411, 413, 414 into the record despite objections for their exclusion by the Applicant and Staff. (3/25/11 RT 20-47, see also, Staff's Opening Brief, pp. 5-7.) The objections questioned Sarvey's qualifications to submit testimony, argued that Sarvey's testimony is more argument than fact, and asserted that most of the documentary evidence is not relevant to the issue of pipeline safety. (3/25/11 RT 24-47, 61-65.)

- ***What testing has PG&E performed on lines 303 and 400 within the past ten years?***

Haines's and Lesh's written testimony indicated that neither has specific knowledge of the testing performed on lines 303 and 400. They instead explained how the existing extensive regulatory framework is intended to ensure regular pipeline inspection and monitoring. The federally required Pipeline Integrity Management (PIM) Program requires PG&E to perform testing and inspection activities every five to seven years that includes periodic gas leak inspections, characterization of cathodic protection current, and direct assessments by digging up sections for inspections for external corrosion, or in-line inspections such as pigging or cameras for internal corrosions. (Exs. 60. pp. 1-3; 304, pp. 2-4 4.) Results from PIM inspections could dictate changes of pipeline operations, including pressure and flow derates, repairs, or changes of inspection frequency or type. Records of these inspections and any operational changes would be kept by PG&E and audited by the CPUC. (Ex. 304, p. 4.)

During the March 25 hearing, Haines supplemented his written testimony by explaining that he contacted PG&E and asked if either line had been pressure tested. He was advised that the lines were installed in 1963 and were pressure tested pursuant to CPUC General Order 112. Haines also learned that line 303 was pressure tested "well above the 1.25 the MAOP." No information was available regarding line 400. (3/25/11 RT 52-53, 58.)

Sarvey supplemented this general discussion with specific information directly responsive to the question; namely that according to a **publicly available** filing from PG&E to the CPUC, line 400 was assessed in 2010 using External Corrosion Direct Assessment (ECDA). (Exs. 408, p. 4; 410.) In 2008 correspondence from PG&E to the CPUC, PG&E reported that line 303 was being prepared for a smart pig run. (Exs. 408, p. 4; 411.) The results of these investigations **were not** presented.

- ***If PG&E has not performed hydrostatic testing on line 303 or line 400 are there any known plans for such testing to occur and if so, when will this occur?***

Lesh reported having no knowledge about the testing history of the lines but explained what the required testing would be for pipelines, such as lines 303 and 400, which were installed after 1961. According to Lesh, pipelines permitted by the CPUC after July 1961 were required to be hydrostatically tested during their commissioning. Because the OGS Project involves newly installed sections of

these lines, the new sections would be built to the most current pipeline codes in effect at the time of construction and would be hydrostatically tested during installation. In Lesh's opinion, it is likely that at least some sections of lines 303 and 400 were previously tested and/or replaced. (Ex. 303, p.4.)

Haines and Sarvey produced evidence that a portion of line 400 is in a **High Consequence Area (HCA**) and currently under review by PG&E. (Exs. 60, p.4; 408, p. 4.) PG&E's March 15, 2011, filing to the CPUC indicates that hydrostatic testing on a .87-mile segment of line 400 will take place in 2011. (Ex. 408, p. 4; 412.) Haines' March 25, 2011, testimony indicates that the line 400 testing pertains to the segment form mile post 82 to mile post 142 - neither of which is near the OGS Project. (3/25/11 RT 53.)

Hazardous Materials Figure 3 below replicates a PG&E transmission pipeline system map that identifies the locations of lines 303 and 400 and indicates the segment of line 400 in a HCA and under review.

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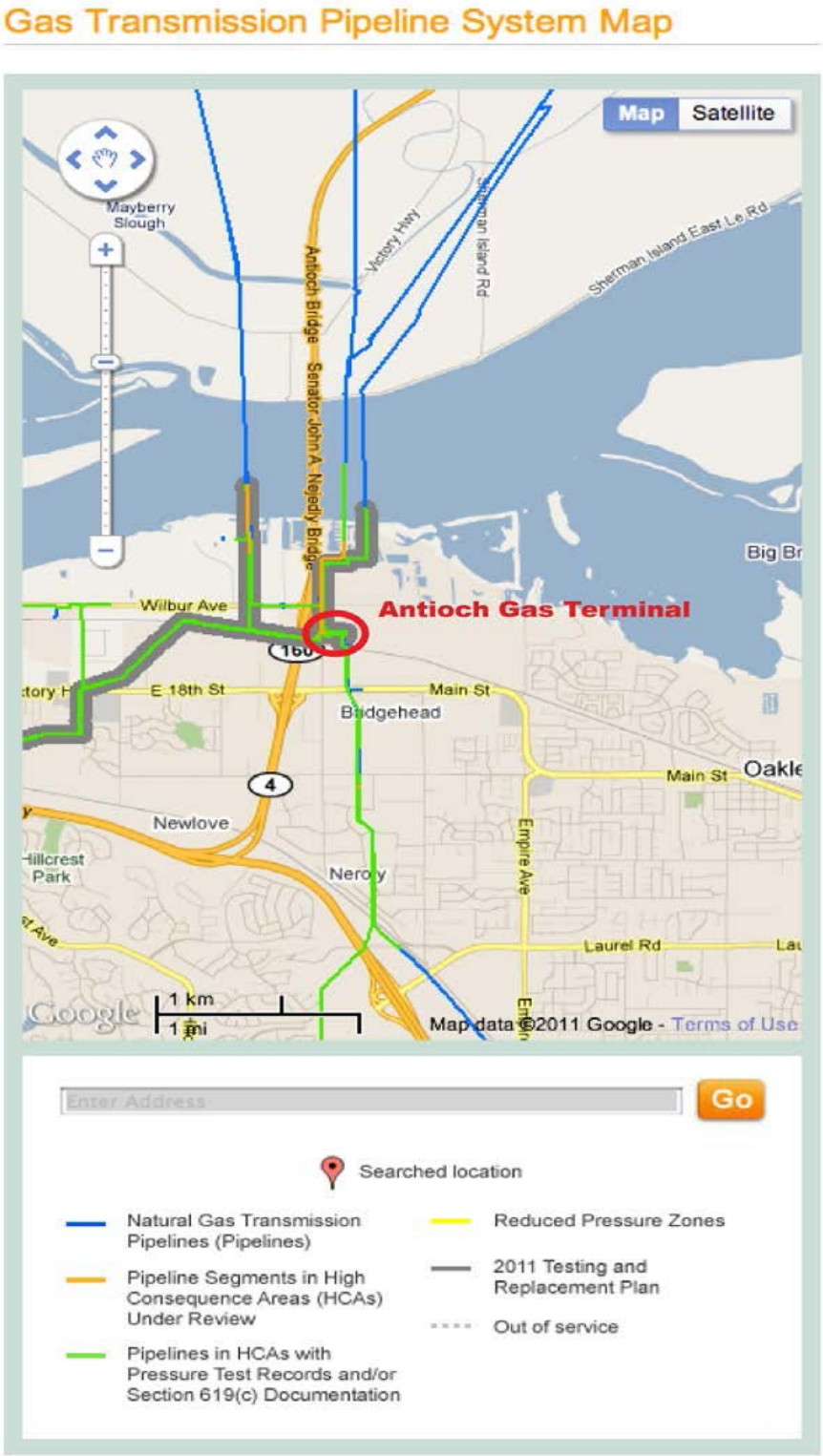
Hazardous Materials – Figure 3

Oakley Generating Station - PG&E Transmission Pipeline System Map



Ex. 60, CCGS LLC's Hazardous Materials Supplemental Testimony

- ***Are there existing known conditions/flaws/defects regarding lines 303 and 400? If so, identify and describe each such condition/flaw/defect.***

None of the witnesses has knowledge of flaws regarding lines 303 and 400. However, Haines and Lesh explained that the existing regulatory framework requires PG&E to remediate any known flaws or defects that are an immediate or scheduled condition. (Exs. 60, p. 5; 304, p. 4; 408, p. 5.)

- ***What is the maximum operating pressure on line 303 and on line 400?***

The combined testimony establishes that current information released by PG&E shows line 303 maximum allowable operating pressure (MAOP), maximum operating pressure (MOP) and design pressure to be 720 psig. The MAOP, MOP, and design pressure for line 400 are all 975 psig. (Exs. 60, p. 5; 304, p. 5; 408, p. 7; 412.)

Haines further explained that in general, the MOP of a particular line segment is "always" less than or equal to the MAOP, which is established in accordance with DOT regulations. (Ex. 60, p. 5.) Haines also testified that Applicant received hourly pressure data from PG& E for line 303 for the three-year period from mid-2005 through mid-2008. According to Haines, the data shows that all pressures were within the limits of the established MOP, MAOP, and design pressure. (Ex. 60, p. 5, 3/25/11 RT 59.)

Staff further explained that in general, when tests find defects, flaws, or damage the impact of these conditions on safe maximum operating pressure of the pipeline are evaluated. Operating pressures may be temporarily adjusted downward to maintain a safe operating pressure safety margin in the affected section of the pipeline until the conditions have been repaired. Once repairs are made, operating pressure can be restored – but cannot exceed the pre-existing MAOP. (Ex. 304, p. 5.)

Sarvey also testified that the pressures at which PG&E operates its pipelines (notwithstanding the MAOP) is currently a matter of concern before the CPUC and National Transportation Safety Board. (Ex. 408, pp. 7 – 8.)

- ***To what extent (stated in numbers) would addition of OGS increase the pressure on line 303 and on line 400? Explain whether, and how, these increases are in conformance with applicable laws, ordinances, regulations, and standards.***

Only Haines and Lesh responded to this question. Haines explained that adding the OGS Project to lines 303 and/or 400 cannot result in an increase in the MAOP of either line because if that occurred, both design pressure and DOT-established MAOP would be exceeded. As discussed above in the response to question number four, the MAOP, MAO, and design pressure for line 303 are identical. This fact is the same for line 400. (Ex. 60, p. 5.)

Lesh has no specific knowledge of operating conditions on these lines but offered the opinion that because of the OGS Project's small connecting pipeline size (6 to 10 inches in diameter) relative to the 36-inch diameter of the transmission pipeline to which it will connect, OGS would consume a small portion of the transmission line's capacity. The witness estimates that OGS would use less than eight percent of the transmission line's capacity and that PG&E would manage this new demand from the OGS through its pressure control and compressor system to avoid adverse impacts on existing gas customers and to ensure that pressure at any point on the transmission pipeline would not exceed its safe MAOP. (Ex. 304, p. 5.)

- ***Will increased gas pressure affect/exacerbate existing conditions on line 303 or line 400? If so, explain the response.***

Haines stated, no, there should be no pressure increases above the current MAOP at which the pipelines now operate. (Ex. 60, p. 5.) Lesh explained that although he has no specific knowledge of existing conditions on these lines, he has no information that suggesting that existing conditions or pressures are out of conformance with expected or required operating parameters such that the addition of the OGS would exacerbate, or worsen, them. (Ex. 304, p. 5.)

Sarvey opined that a properly functioning natural gas pipeline that has been adequately maintained should be able to function without incident. However, specifically as to lines 303 and 400, he stated that in the absence of PG&E's testing, maintenance, pressure fluctuation and gas valve records no one can answer the question with certainty. (Ex. 408, p. 8.)

- ***Given that OGS might have numerous startups/shutdowns and ramping up and down over the course of any given year in response to various dispatch orders, would line 303 or line 400 be adversely affected by corresponding pressure changes?***

Only Haines and Lesh answered this question. According to Haines, fluctuations in gas pressure are consistent with normal gas operations. As long as gas pipelines have been pressure tested to at least 1.25 times the MAOP, no flaw that has survived this type of test would be large enough to be susceptible to failure from pressure-cycle fatigue-crack-growth during the life of the pipeline. Therefore lines 303 and 400 would not be negatively impacted by the pressure fluctuations resulting from the operations of OGS. (Ex. 60, p. 5; 3/25/11 RT 50-51.)

Staff's witness has no specific knowledge of existing operations on these lines but explained that the laws that apply to pipeline design address cyclic loading through specification of the pipeline steel grading and requirements for ductility. The witness further explained that steels used in the manufacturing of pipe used for high pressure natural gas transmission must be tested to ensure both ductility and toughness and it is explicit that this testing renders cyclic loading insignificant in normal pipeline operation and allows design based on yield strength alone to ensure safe operation of natural gas pipelines where pressures are maintained below the MAOP. (Ex. 304, p. 6.)

The collective answers to the Committee's questions strongly indicate that existing regulatory programs applicable to natural gas transmission lines would protect the public and workers at the OGS site from significant risk from the new pipelines and pre-existing lines 303 and 400. The evidence establishes that newly installed gas pipelines built and maintained to current standards are safe and present little risk to the public during their lifetime. (Ex. 300, p. 4.4-9.) Additionally, because the gas pipelines that would be constructed for this project would be located and lie entirely within the OGS site or Antioch Terminal, there is minimal risk of impacts to the public from a rupture or failure. (Exs. 4.4-8 – 4.4-9.) Thus, we find that compliance with existing LORS should be sufficient to ensure minimal risks of pipeline failure.

As mentioned above and underscored by Sarvey's testimony, we recognize that the CPUC is currently evaluating proposed new safety and reliability regulations in response to the recent, tragic PG&E gas line rupture and fire in San Bruno. Although regulation of pipelines in California is a matter for the CPUC and not within the Energy Commission's licensing jurisdiction (Commission jurisdiction

over related facilities such as fuel lines extends up to the first point of interconnection (20 Cal. Code Regs. § 1702(n)), we impose Condition of Certification **HAZ-10**. Should the CPUC, National Transportation Safety Board, U.S. Department of Transportation or any other agency with jurisdiction adopt new safety and/or reliability legislation, rules, regulations, or standards for natural gas transmission and distribution pipelines during construction of the OGS pipelines or during OGS operation, the project owner shall notify the Compliance Program Manager (CPM) of the regulations and consult with the CPM regarding the project's feasible compliance with and implementation of the measures if they are applicable to the OGS Project.

The Applicant and Staff submitted post-hearing briefs summarizing the existing arguments, testimony, and evidence of record but add no new perspective to matters already addressed by the evidence of record or the discussion in this section.

iii. Aqueous Ammonia

The evidence establishes that aqueous ammonia is the only hazardous material that may pose a significant risk of off-site impact. Aqueous ammonia will be used to control the emission of oxides of nitrogen (NO_X) from the combustion of natural gas. OGS would use 29 percent aqueous ammonia solution stored in one stationary above-ground storage tank, with a maximum capacity of 18,000 gallons. (Ex. 1, pp. 5.5-14 – 5.5-16.) The project's use of aqueous ammonia can result in the release of ammonia vapor in the event of a spill. The accidental release of aqueous ammonia without proper mitigation can result in significant down-wind concentrations of ammonia gas. (Ex. 300, p. 4.4-10.)

In evaluating the potential impacts of an accidental release, we note thee following benchmark exposure levels for ammonia gas occurring off-site:

- The lowest concentration posing a risk of lethality (2,000 parts per million (ppm))
- The concentration immediately dangerous to life and health (300 ppm)
- The emergency response planning guideline level of two to 150 ppm, and
- The level considered by the Energy Commission to be without serious adverse effects on the public for a one time exposure (75 ppm). (Ex. 300, p. 4.4-10.)

The evidence explains that Staff used a health-based airborne concentration of 75 ppm to evaluate the significance of impacts associated with potential releases of ammonia. According to Staff, this benchmark – as compared to the others listed above – evaluates the acceptable level of avoidable exposures to the population instead of merely addressing emergency planning and proper safety practices. (Ex. 300, pp. 4.4-10, 4.4-31.)

Staff chose the National Research Council's 30-minute Short Term Public Emergency Limit (STPEL) for ammonia to determine the potential for significant impact. This limit is designed to apply to accidental unanticipated releases and subsequent public exposure. Exposure at this level should not result in serious effects but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." According to Staff, exposures to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. Staff further opines that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. Thus, Staff concludes that these limits constitute an appropriate balance between public protection and mitigation of unlikely events and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public. (Ex. 300, p. 4.4-10, FSA Hazardous Materials Appendix A.)

Staff applied these significance criteria to the results of the Applicant's Offsite Consequences Analysis (OCA). The OCA was performed to assess the risk to humans at various distances from the site under a worst-case scenario where a spill or rupture occurs involving the failure and complete discharge of the storage tank. (Exs. 30; 300, pp. 4.4-10 – 4.4-11.) Under the worst-case scenario, performed pursuant to the California Accidental Release Program (CalARP), the contents of the storage tank (18,000 gallons) would be collected by the secondary containment structure.

Ammonia emissions from the potential release scenario were calculated following methods provided in the RMP off-site consequence analysis guidance. The highest daily temperature recorded in the area during the last three years (108°F), a wind speed of 1.5 meters per second, and atmospheric stability class-F were used for emission and dispersion calculations. Potential off-site ammonia concentrations were estimated using the SLAB numerical dispersion model. (Exs. 30; 300, pp. 4.4-10 – 4.4-11.)

According to the evidence, the Applicant's OCA modeling results establish that potential exposure associated with a release will not exceed 75 ppm at any public receptor. The results of the Applicant's modeling – which Staff reviewed and accepted - specifically show that concentrations exceeding CEC's level of significance of 75 ppm would not extend beyond the facility fence line under the worst-case scenario.

Furthermore, according to the evidence, the potential for accidents resulting in the release of hazardous materials is greatly reduced through implementation of a safety management program that includes the Applicant's use of engineering and administrative controls. More particularly, in addition to complying with applicable LORS, the Applicant proposes that the use, storage, and response of any spill will also be addressed by engineering and administrative controls and on-site spill program. (Ex. 300, p. 4.4-11.)

Engineering and administrative controls affect the significance of potential impacts related to the use, handling, storage and transport of hazardous materials. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves), which can prevent a hazardous material spill from occurring, or which can limit the spill to a small amount and/or confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow. Both types of controls are designed to help prevent accidents or keep them small if they do occur, and are specified at length in the evidence. In both cases, the goal is to prevent a spill from moving off-site and causing harm. The evidence identifies the applicable engineering and administrative controls. (Ex. 300, pp. 4.4-5, 4.4-11 – 4.4.12.)

Elements of the OGS facility engineering and administrative controls and on-site spill response plan are summarized as follows.

Engineering Controls

The engineered safety features proposed by the Applicant for use at the OGS Project include:

- storage of containerized hazardous materials in properly labeled original containers within structures protected by a secondary containment berm. Incompatible materials would be separated and flammable materials would be stored in a flammable storage cabinet;
- installation of a fire protection system for hazardous materials storage areas;

- construction of a concrete containment sump surrounding the aqueous ammonia storage tank capable of holding the entire contents of the tank plus the rainfall associated with a 24-hour, 25-year storm;
- construction of a sloped concrete pad beneath the ammonia truck unloading area that would drain into the storage tank's concrete containment sump; and plus;
- process protective systems including continuous tank level monitors, automated leak detectors, temperature and pressure monitors, alarms, and emergency block valves.

Administrative Controls

A worker health and safety program will be prepared by the Applicant and will include (but not be limited to) the following elements (see the **Worker Safety and Fire Protection** section of this Decision for specific regulatory requirements):

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

On-Site Spill Response

In order to address the issue of spill response, the facility will prepare and implement an emergency response plan that includes information on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, and prevention equipment and capabilities, as well as other elements. Emergency procedures will be established which include evacuation, spill cleanup, hazard prevention, and emergency response.

The Applicant's proposed on-site spill response measures will be supplemented by regulatory requirements. For example, because the project will have oil in a quantity greater than 1,320 gallons and given the known nearby waters of the State, the project owner must prepare a Spill Prevention, Control, and

Countermeasure (SPCC) Plan as required by 40 CFR 112 as well as by California Health and Safety Code sections 25270 through 25270.13.

Furthermore, in the event of a large spill, a full hazardous materials response would be provided by the Contra Costa County Health Services Department Hazmat Team. The County's Hazmat team is capable of handling any hazardous materials-related incident at the proposed facility and would respond within one hour. The evidence establishes that the County's Hazmat team is capable of responding to a hazardous materials emergency call from the OGS with an adequate response time. (Ex. 300, p. 4.4-12.)

Based on the foregoing, we conclude that the project's compliance with the regulatory framework, the project's implementation of engineering and administrative controls and on-site spill measures, and the availability and ability of emergency responders to provide adequate response within a reasonable time will greatly reduce the potential for accidents and resulting impacts from the release of aqueous ammonia. Compliance with the safety and regulatory requirements will be ensured with implementation of Conditions of Certification **HAZ-1** through **HAZ-3** and **HAZ-5.** **HAZ-1** imposes limitations on the use and storage of hazardous materials and their strength and volume. **HAZ-2** requires the project owner to provide to the Contra Costa County Health Services Department – Hazardous Materials Program and Energy Commission Compliance Program manager, a Hazardous Materials Business Plan (HMBP), an updated Spill Prevention, Control, and Countermeasure Plan (SPCC), and an updated Risk Management Plan (RMP). **HAZ-3** requires the project owner to develop and implement a Safety Management Plan for tanker-truck delivery of aqueous ammonia and other liquid hazardous materials. **HAZ-5** requires the project owner to direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

3. Transportation of Hazardous Materials

Various containerized and bulk hazardous materials, including aqueous ammonia, will be trucked to the OGS site. Aqueous ammonia will be delivered in DOT-certified vehicles with design capacities of 6,700 gallons. The evidence indicates that aqueous ammonia poses the predominant risk associated with hazardous materials transport. (Ex. 300, pp. 4.4-13 – 4.4-15.)

The risk of an accidental release during aqueous ammonia transport in the project area was assessed based on criteria such as previous accident data, established accident modeling, and existing regulatory requirements regarding transport of hazardous materials (e.g., standards for vehicle safety and driver qualifications/competence).

The City of Oakley has two major truck routes: State Route (SR) 4 and East Cypress Road. The Applicant's proposed transportation routes for hazardous materials delivery would have trucks either (1) travel on SR 160, exit at Wilbur Avenue, and turn onto Bridgehead Road, or (2) travel on SR 4/Main Street and turn onto Bridgehead Road. When trucks leave State Route 160 they enter onto the surface streets of the City of Antioch briefly before entering into the City of Oakley. The two proposed routes are considered truck routes by the City of Antioch and the proposed routes fulfill General Plan policy 11.7.2I, which is to promote the safest possible transport of hazardous materials through Antioch. (Ex. 300, p. 4.4-13.) Staff therefore evaluated the risk of an accidental transportation release in the project area focusing on the project area after the delivery vehicle leaves the main highway at either SR-160 or SR-4/Main, relying on the existing extensive regulatory program that applies to the shipment of hazardous materials on California highways to ensure safe handling in general transportation and driver competence. Staff cited Federal Hazardous Materials Transportation Law 49 USC §5101 and following, DOT regulations 49 CFR subpart H, §172–700, and California Department of Motor Vehicles (DMV) regulations on hazardous cargo as authorities on which it relied.

The Applicant estimated that routine operation of the proposed OGS would require a maximum of 37 deliveries per year. (Ex. 1, p. 5.5-15.) Each delivery will travel less than approximately 0.4 miles along Bridgehead Road regardless of whether it arrives from SR-160 or from SR-4/Main to the OGS. This would result in a maximum of 15 miles of delivery tanker truck travel in the project area per year (with a full load). Staff believes that the risk over this distance is insignificant. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in 1,000,000.

In addition, Staff developed and used a transportation risk assessment model to calculate the probability of an accident resulting in a release of a hazardous material due to delivery from the main highway to the facility via Bridgehead Road. Results show a risk of 0.04 in 1,000,000 for one trip and a total annual risk of 1.5 in 1,000,000 for 37 deliveries. This risk was calculated using accident

rates on various types of roads (in this case, rural two-lane) with distances traveled on each type of road computed separately. Although it is an extremely conservative model in that it includes risk of accidental release from all modes of hazardous materials transportation and does not distinguish between a high-integrity steel tanker truck and other less secure modes, the results still show that the risk of a transportation accident is insignificant.

Regulatory standards and related requirements associated with the transport, delivery, and security of hazardous materials to/within the OGS site are included in Conditions of Certification **HAZ-3, HAZ-4**, **and HAZ-6**. With implementation of the Conditions of Certification below, we conclude that the transport of hazardous materials to and from the OGS site will pose not significant impacts or risks. (Ex. 300, pp. 4.4-13 – 4.4-14.)

4. Seismic Risk

The OGS site is in a seismically active region, and could potentially be subject to earthquakes that could cause the failure of hazardous material storage facilities and electrically controlled valves and pumps. If a failure of all of these preventive control measures were to occur, a vapor cloud of hazardous materials could form and move offsite and affect individual in the surrounding community. (Ex. 300, p. 4.4-15.)

An analysis of potential seismic risks at the OGS site was conducted based on data from historic earthquake events, the project's proposed facilities, and project-related conformance with applicable regulatory requirements (e.g., seismic parameters of the California Building Code). The evidence indicates that storage facility and/or pipeline failures at the OGS site from seismic events are not probable, and do not represent a significant risk to the public. Additional discussion of potential seismic concerns and related design features is provided in the **Geological Resources** and **Facility Design** sections of this Decision. (Ex. 300, p. 4.4-15.)

5. Site Security

Because the OGS Project will use and store large quantities of hazardous materials, including aqueous ammonia, site security is essential notwithstanding the Staff determination that the site is appropriately classified as "low vulnerability." The evidence identifies site security measures for this project commensurate with its level of vulnerability and consistent with measures at all

power plants under Energy Commission jurisdiction, to provide a minimum level of security consistent with the noted regulatory guidelines. (Ex. 300, pp. 4.4-16 - 4.4-18.) Conditions of Certification **HAZ-7** and **HAZ-8** impose the required security measures.

6. Cumulative Impacts

A cumulative effect refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effects of the proposed project. (Pub. Res. Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c), 15130, and 15355.)

The evidence includes a cumulative impacts analysis. The evidence shows that while cumulative impacts related to hazardous material management at applicable existing and foreseeable facilities (including the OGS Project) are possible, the probability for cumulative impacts is low due to the numerous safeguards required to both prevent and control the release of hazardous materials at such facilities.

More particularly, the evidence explains that Staff considered facilities that use or store gaseous or liquid hazardous materials, or locations where such facilities might likely be built. There are three projects in the vicinity of the proposed OGS that could potentially contribute to cumulative impacts. The Gateway Generating Station (GGS), Contra Costa Power Plant (CCPP), and the proposed Marsh Landing Generating Station (MLGS) are located approximately 0.6 miles northwest of the OGS site, but not directly adjacent. These are the facilities that would have hazardous materials on-site. The CCPP and GGS currently have aqueous ammonia storage facilities on-site in addition to similar chemicals that are projected for the proposed OGS. Since the Applicant's modeling of an accidental release shows that ammonia concentrations exceeding 75 ppm would be found only at distances less than 42 feet from the ammonia storage tank and thus not extend off-site to reach either of these facilities, cumulative impacts from ammonia releases from these four facilities are not expected to occur.

Worst-case accidental - or intentional - release scenarios are highly unlikely because the Applicant will develop and implement a hazardous material storage and handling program for OGS independent of any other projects considered for potential cumulative impacts and implement enhanced site security measures. Staff believes that the facility, as proposed by the Applicant and with the

additional mitigation measures proposed by Staff, poses a less than significant risk of accidental release that could result in off-site impacts. It is unlikely that an accidental release that has very low probability of occurrence (about one in one million per year) would independently occur at the OGS site and another facility at the same time. (Ex. 300, pp. 4.4-17 – 4.4-18.)

7. Compliance with LORS

As discussed above, the OGS Project's use and storage of hazardous materials and regulated substances at the plant site are governed by federal, state, and local LORS. The evidence establishes that the project will comply with applicable LORS. (Exs, 1, §, 5.5; 300, § 4.4.)

8. Response to Agency and Public Comments

The City of Antioch Community Development Department Planning Division commented that it has no concerns with the proposed routes for hazardous materials transportation even though when trucks leave SR 160 they briefly enter onto Antioch surface streets of Antioch before entering into Oakley. According to the City of Antioch, the two proposed routes are considered truck routes by the City of Antioch and they fulfill General Plan policy 11.7.2I, which promotes the safest possible transport of hazardous materials through Antioch. (Ex.300, p. 4.4-18.) Staff incorporated the City's comments into the Final Staff Assessment.

FINDINGS OF FACT

Based on the evidence, we make the following findings and reach the following conclusions:

1. The OGS Project will use hazardous materials during construction and operation, including natural gas and aqueous ammonia

2. The major public health and safety hazards are associated with the risk of fire or explosion related to natural gas and the release of aqueous ammonia.

3. The risk of fire or explosion from natural gas will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices. Specifically, this will include the use of double block and bleed valves for secure shut off, automated combustion controls, burner management, inspection of welds, and use of corrosion resistant coatings.

4. The risk of off-site aqueous ammonia migration is minimal, and the risk of on-site leaks will be reduced to insignificant levels with the project's compliance with applicable regulatory requirements and Conditions of Certification below.

5. Potential leak and fire risks associated with road crossings by natural gas pipes and other project facilities will be reduced to insignificant levels with PG&E's and the project's compliance with applicable regulatory requirements.

6. Aqueous ammonia poses the predominant risk associated with hazardous materials transport. The risk of an accidental release during transport in the project area will be reduced to insignificant levels by conformance with applicable regulatory requirements, including standards for vehicle safety and driver qualifications/competence.

7. While the OGS site could potentially be subject to earthquakes that result in the failure of hazardous material storage facilities, such occurrences are not probable and do not represent a significant risk to the public.

8. The OGS Project will involve on-site hazardous material use/storage in sufficient quantities to merit the development of special site security measures to prevent unauthorized access. These measures would ensure that potential security risks related to construction and operation of the OGS facility would be less than significant.

9. Hazardous materials proposed for use in the construction and operation of the OGS Project, when considered in conjunction with those used at other existing and potential future facilities in the project vicinity, will not cumulatively result in a significant risk to the public.

10. The OGS Project will be designed with an operating life of approximately 30 years. While it is not possible to identify specific circumstances and requirements related to facility closure, this process process would conform with applicable LORS in such a way that public health and safety and the environment are protected from adverse impacts.

11. Implementation of the mitigation measures contained in the following Conditions of Certification will ensure that the OGS Project will not cause significant impacts to public health and safety as the result of the use, handling, storage, or transport of hazardous materials.
12. With implementation of the Conditions of Certification listed below, the OGS Project will comply with all applicable LORS related to hazardous materials management.

CONCLUSION OF LAW

1. We therefore conclude that the use of hazardous materials in association with the OGS Project as mitigated by the Conditions of Certification will not result in any significant direct, indirect, or cumulative adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

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

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

HAZ-2 The project owner shall concurrently provide a Hazardous Materials Business Plan (HMBP), an updated Spill Prevention, Control, and Countermeasure Plan (SPCC), and an updated Risk Management Plan (RMP) prepared pursuant to the California Accidental Release Program (CalARP) to the Contra Costa County Health Services Department – Hazardous Materials Program (CCCHSD-HMP) and the CPM for review. The project owner shall consider all recommendations that are made by the CCCHSD and CPM within 30 days of submittal. Copies of any comments received (or if none were received, a letter so stating), the final updated HMBP, updated SPCC Plan, and updated RMP shall then be provided to the CCCHSD-HMP and the East Contra Costa Fire Protection District (ECCFPD) for information and to the CPM for approval.

Verification: At least 30 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of any comments received (or if none were received, a letter so stating), a final updated Business Plan and updated SPCC Plan to the CCCHSD-HMP for information and to the CPM for approval. At least 30 days prior to delivery of aqueous ammonia to the site, the project owner shall provide any comments received (or if none were received, a letter so stating), and the final updated RMP to the CCCHSD-HMP and the ECCFPD for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid hazardous materials by tanker truck. The plan shall include procedures, protective equipment requirements, training, and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials including provisions to maintain

lockout control by a power plant employee not involved in the delivery or transfer operation. This plan shall be applicable during construction, commissioning, and operation of the power plant.

Verification: At least 30 days prior to the delivery of any liquid hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM.

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

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

Verification: At least 30 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-6 The project owner shall direct all vendors delivering any hazardous material to the site to use only the routes approved by the CPM (SR-4 to SR-160 to Wilbur Avenue to Bridgehead Road to the project site, or SR 4/Main Street and turn onto Bridgehead Road to the project site). The project owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least 60 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZ-7 Prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to the CPM for review and approval. The Construction Security Plan shall include the following:

1. written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on site or off site;

2. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
3. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-8 The project owner shall also revise the existing or prepare a new site-specific security plan for the commissioning and operational phases that will be available to the CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. evacuation procedures;
2. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
3. written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on site or off site;
4. A. a statement (refer to sample, **Attachment A**), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to determine the accuracy of employee identity and employment history and shall be conducted in accordance with state and federal laws regarding security and privacy;

   B. a statement(s) (refer to sample, **Attachment B**), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site;
5. a statement(s) (refer to sample, **Attachment C**), signed by the owners or authorized representative of hazardous materials transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.802,

and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

6. closed circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, the main entrance gate, the outside entrance to the control room, the ammonia storage tank, and the entire boundary of the OGS site.

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to those security plans. The CPM may authorize modifications to these measures, or may require additional measures such as protective barriers for critical power plant components— transformers, gas lines, and compressors—depending upon circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with both appropriate law enforcement agencies and the applicant.

Verification: At least 30 days prior to the initial receipt of hazardous materials on site, the project owner shall notify the CPM that a site-specific operations site security plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

HAZ-9 The project owner shall not allow any fuel gas pipe cleaning activities on site, either before placing the pipe into service or at any time during the lifetime of the facility, that involve “flammable gas blows” where natural (or flammable) gas is used to blow out debris from piping and then vented to atmosphere. Instead, an inherently safer method involving a non-flammable gas (e.g. air, nitrogen, steam) or mechanical pigging shall be used. Exceptions to any of these provisions will be made only if no other satisfactory method is available, and then only with the approval of the CPM.

Verification: At least 30 days before any fuel gas pipe cleaning activities involving fuel gas pipe of four-inch or greater external diameter, the project owner shall submit a copy of the Fuel Gas Pipe Cleaning Work Plan which shall indicate the method of cleaning to be used, what gas will be used, the source of pressurization, and whether a mechanical PIG will be used, to the CBO for information and to the CPM for review and approval.

HAZ-10 The project owner shall notify the CPM in writing of any new safety and/or reliability legislation, rules, regulations, or standards adopted for natural gas distribution pipelines by the CPUC, National Transportation Safety Board, or U.S. Department of Transportation or any other agency with jurisdiction during OGS pipeline construction or during OGS operation that are applicable to the OGS Project natural gas pipeline. The project owner shall notify the Compliance Program Manager (CPM) of the regulations and thereafter, by the time prescribed by the CPM, shall consult with PG&E and the CPM regarding the project's feasible compliance with and implementation of the measures if they are applicable to OGS Project natural gas pipelines or distribution pipelines that are applicable to the OGS Project natural gas pipeline.

Verification: Within 15 days of the adoption of any new safety and/or reliability legislation, rules, regulations, or standards for natural gas distribution pipelines, that are applicable to the OGS natural gas pipeline, the project owner shall provide the CPM with a written copy of the rule.

SAMPLE CERTIFICATION (Attachment A)

Affidavit of Compliance for Project Owners

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____

(Company name)

for employment at

_____

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment B)

Affidavit of Compliance for Contractors

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____

(Company name)

for contract work at

_____

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment C)

Affidavit of Compliance for Hazardous Materials Transport Vendors

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that the below-named company has prepared and implemented security plans in conformity with 49 CFR 172.880 and has conducted employee background investigations in conformity with 49 CFR 172, subparts A and B,

_____

(Company name)

for hazardous materials delivery to

_____

(Project name and location)

as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

HAZARDOUS MATERIALS

Appendix A

Basis for Staff's Use of 75 Parts Per Million Ammonia Exposure Criteria

HAZARDOUS MATERIALS - APPENDIX A
Acute Ammonia Exposure Guidelines

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

Ex. 300, FSA.
1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)
* The (NRC 1979), (WHO 1986), and (Henderson and Haggard 1943) all conclude that available data confirm the direct relationship to increases in effect with both increased exposure and increased exposure duration.
**** THE (NRC 1979) DESCRIBES A STUDY INVOLVING YOUNG ANIMALS, WHICH SUGGESTS GREATER SENSITIVITY TO ACUTE EXPOSURE IN YOUNG ANIMALS. THE WHO (1986) WARNED THAT THE YOUNG, ELDERLY, ASTHMATICS, THOSE WITH BRONCHITIS, AND THOSE THAT EXERCISE SHOULD ALSO BE CONSIDERED AT INCREASED RISK BASED ON THEIR DEMONSTRATED GREATER SUSCEPTIBILITY TO OTHER NON-SPECIFIC IRRITANTS.**

HAZARDOUS MATERIALS

Appendix B

Hazardous Materials Proposed for Use at the OGS

(Source: OG 2009a Table 5.5-2)

HAZARDOUS MATERIALS - APPENDIX B
Hazardous Materials Proposed for Use at the OGS

Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities								
Trade Name	**Chemical Name**	**CAS Number**	**Maximum Quantity Onsite**	**CERCLA SARA RQa**	**RQ of Material as Used Onsiteb**	**EHS TPQc**	**Regulated Substance TQd**	**Prop 65**
Aqueous ammonia(29.4% NH3 by weight)	Aqueous ammonia	7664-41-7	18,000 gal g	100 lbs	526 lbs	500 lbs	500 lbs	No
Aqueous ammonia (19%-28% NH3 by weight)	Aqueous ammonia	7664-41-7	400 gal	100 lbs	357 lbs	500 lbs	500 lbs	No
Anti-scalant	Antiscalant	Various	400 gal	e	e	e	e	No
Citric acid	Citric Acid	77-92-9	625 lbs	e	e	e	e	No
Cleaning chemicals/detergents	Various	None	3,000 gal	e	e	e	e	No
Diesel No. 2	Diesel No. 2	68476-34-6	400 gal	e	e	e	e	No
Hydraulic oil (e.g., Fryquel)	Phosphate ester	None	300 gal	42 gal f	42 gal f	e	e	No
Laboratory reagents	Various	Various	10 gal	e	e	e	e	No
Lubrication oil	Oil	None	20,000 gal	42 gal f	42 gal f			No
Mineral insulating oil	Oil	8012-95-1	82,000 gal	42 gal f	42 gal f			No
Oxygen scavenger (e.g., NALCO ELIMIN-O_X)	Oxygen scavenger	None	500 gal	e	e	e	e	No
Amine solution	Amine	2008-39-1	400 gal	e	e	e	e	No
Bromine containing solution	Bromine	7726-95-6	600 gal	e	e	500 lbs	500 lbs	No
Sodium dichloroisocyanurate	Sodium bromide	2893-78-9/7647-15-6	25 gal	e	e	e	e	No

Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities								
Trade Name	**Chemical Name**	**CAS Number**	**Maximum Quantity Onsite**	**CERCLA SARA RQa**	**RQ of Material as Used Onsiteb**	**EHS TPQc**	**Regulated Substance TQd**	**Prop 65**
Sodium bisulfite (NaHSO3)	Sodium bisulfite	7631-90-5	500 gal	5,000 lbs	5,000 lbs	e	e	No
Sodium bisulfite (NaHSO3)	Sodium bisulfite	7631-90-5	500 gal	5,000 lbs	5,000 lbs	e	e	No
Sulfuric acid (93%)	Sulfuric acid	7664-93-9	600 gal	1,000 lbs	1,075 lbs	1,000 lbs	1,000 lbs	Yes
Sodium hydroxide (NaOH) (20% to 50%)	Sodium hydroxide	1310-73-2	400 gal	1,000 lbs	800 lbs	e	e	No
Sodium hypochlorite (12.5%)	Sodium hypochlorite	7681-52-9	600 gal	100 lbs	800 lbs	e	e	No
Hydrochloric acid	Hydrochloric acid	7647-01-0	25 gal	5,000 lbs	5,000 lbs	e	15,000 lbs	No
Sodium nitrite	Sodium nitrite	7632-00-0	500 lbs	100 lbs	100 lbs	e	e	No
Trisodium phosphate (Na3PO4) (e.g., NALCO 7208)	Trisodium phosphate	7601-54-9	400 gal	e	e	e	e	No
Sulfur hexafluoride	Sulfur hexafluoride	2551-62-4	200 lbs	e	e	e	e	No
Acetylene	Acetylene	47-86-2	540 cu ft	e	e	e	e	No
Hydrogen	Hydrogen	1333-74-0	50,000 cu ft	e	e	e	e	No
Oxygen	Oxygen	7782-44-7	540 cu ft	e	e	e	e	No

Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities								
Trade Name	**Chemical Name**	**CAS Number**	**Maximum Quantity Onsite**	**CERCLA SARA RQa**	**RQ of Material as Used Onsiteb**	**EHS TPQc**	**Regulated Substance TQd**	**Prop 65**
Propane	Propane	74-98-6	200 cu ft	e	e	e	e	No
EPA Protocol gases	Various	Various	2,500 cu ft	e	e	e	e	No
Cleaning chemicals	Various	Various	Varies (less than 25 gal. liquids or 100 lbs solids for each chemical)	e	e	e	e	No
Paint	Various	Various	Varies (less than 25 gal. liquids or 100 lbs solids for each type)	e	e	e	e	No

Ex. 300, FSA

a RQ for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA) (Ref. 40 Code of Federal Regulations [CFR] 302, Table 302.4). Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

b RQ for materials as used onsite. Since some of the hazardous materials are mixtures that contain only a percentage of an RQ, the RQ of the mixture can be different than for a pure chemical. For example, if a material only contains 10% of a reportable chemical and the RQ is 100 lb., the RQ for that material would be (100 lb)/(10%) = 1,000 lb.

c Extremely Hazardous Substance (EHS) TPQ (Ref. 40 CFR Part 355, Appendix A). If quantities of extremely hazardous materials equal to or greater than the TPQ are handled or stored, they must be registered with the local Administering Agency.

d TQ is from 19 California Code of Regulations (CCR) 2770.5 (state) or 40 CFR 68.130 (federal)

e No reporting requirement. Chemical has no listed threshold under this requirement.

f State RQ for oil spills that will reach California state waters [Ref. CA Water Code Section 13272(f)]

g The ammonia tank capacity is 18,000 gallons; however, the tank is only filled to 85% of its capacity, or 15,300 gallons.

F. WASTE MANAGEMENT

The Oakley Generating Station (OGS) Project will generate non-hazardous and hazardous wastes during construction and operation. This section reviews the project's waste management plans for reducing the risks and environmental impacts associated with handling, storage, and disposal of project-related non-hazardous and hazardous wastes.

Hazardous waste consists of materials that exceed criteria for toxicity, corrosivity, ignitability, or reactivity as established by the California Department of Toxic Substances Control (DTSC).[1] State law requires hazardous waste generators to obtain U.S. Environmental Protection Agency identification numbers and to contract with registered hazardous waste transporters to transfer hazardous waste to appropriate Class I disposal facilities. (Cal. Code Regs., tit. 22, § 66262.10 et seq.)

Non-hazardous wastes are degradable or inert materials, which do not contain concentrations of soluble pollutants that could degrade water quality and are therefore eligible for disposal at Class II or Class III disposal facilities. (Cal. Code Regs., tit. 14, § 17300 et seq.)

Under CEQA Guidelines, the project could result in a significant environmental impact if, for instance it, (1) would create a significant hazard to the public or environment through routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials, (2) emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school[2], (3) is located on a site included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 ("Cortese List"), and as a result, would create a significant hazard to the public or environment.

Our evaluation also encompasses Staff's assessment, which is intended to to ensure that:

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[1] California Health and Safety Code, section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended) and Title 22, California Code of Regulations, Section 66261.1 et seq.

[2] This item is addressed in the **Hazardous Materials Management** section of this Decision.

- Any existing wastes on-site are adequately characterized and remediated in accordance with all applicable laws, ordinances, regulations, and standards (LORS). Compliance with LORS ensures that wastes generated during the construction and operation of the proposed project would be managed in an environmentally safe manner.
- The management of project wastes would be in compliance with all applicable laws, ordinances, regulations, and standards (LORS).
- The disposal of project wastes would not result in significant adverse impacts to existing waste disposal facilities.

Several federal, state, and local environmental LORS have been established to ensure the safe and proper management of wastes for the protection of human health and the environment. Project compliance with these LORS is a significant component of this assessment. The applicable LORS are identified below in **Waste Management Table 1** and again in **Appendix A** to this Decision. The OGS Project's compliance with the LORS is discussed in this section.

Waste Management Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Title 42, United States Code (U.S.C.), §§6901, et seq. Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al).	The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) et al, establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions and responsibilities, as well as research, training, and grant funding provisions.
Title 42, U.S.C., §§ 9601, et seq. Comprehensive Environmental Response, Compensation and Liability Act	The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment, among other things.
Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes.	These regulations were established by United States Environmental Protection Agency (USEPA) to implement the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes. USEPA implements the regulations at the federal level. However, California is an authorized state so the regulations are

Applicable Law	Description
	implemented by state agencies and authorized local agencies in lieu of USEPA.
Title 49, CFR, Parts 172 and 173. Hazardous Materials Regulations	U.S. Department of Transportation established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40, CFR, section 262.20.
State	
California Health and Safety Code (HSC), Chapter 6.5, §25100, et seq. Hazardous Waste Control Act of 1972, as amended.	This California law creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements. The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level.
Title 22, California Code of Regulations (CCR), Division 4.5. Environmental Health Standards for the Management of Hazardous Waste	These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters. The Title 22 regulations are established and enforced at the state level by DTSC. Some generator standards are also enforced at the local level by CUPAs.
California Health and Safety Code,, Chapter 6.11 §§25404 – 25404.9 Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)	The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs. The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as Certified Unified Program Agencies

Applicable Law	Description
	(CUPAs). Contra Costa County Department of Environmental Health is the area CUPA.
Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §15100, et seq. Unified Hazardous Waste and Hazardous Materials Management Regulatory Program	While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses. • Article 9 – Unified Program Standardized Forms and Formats (§§ 15400-15410). • Article 10 – Business Reporting to CUPAs (§§15600 – 15620).
Public Resources Code, Division 30, § 40000, et seq. California Integrated Waste Management Act of 1989.	The California Integrated Waste Management Act of 1989 (as amended) establishes mandates and standards for management of solid waste. Among other things, the law includes provisions addressing solid waste source reduction and recycling, standards for design and construction of municipal landfills, and programs for county waste management plans and local implementation of solid waste requirements.
Title 14, CCR, Division 7, §17200, et seq. California Integrated Waste Management Board	These regulations further implement the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions.
California Health and Safety Code, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq. Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14).	This law was enacted to expand the State's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (~ 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a four year cycle, with a summary progress report due to DTSC every 4th year.
Title 22, CCR, §67100.1 et seq. Hazardous Waste Source Reduction and Management Review.	These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the Act.
Local	
Contra Costa County Health Services Hazardous Materials Programs	Certified Unified Program Agency (CUPA) Program This program consolidates, coordinates and makes consistent the administrative requirements, permitting, inspection activities, enforcement activities and fees for hazardous waste and hazardous materials programs in each jurisdiction.
Contra Costa County Health Services Hazardous Materials Incident Notification Policy	Provides oversight for spills and releases of hazardous materials.

Applicable Law	Description
Contra Costa County Integrated Waste Management Plan.	Provides guidance for local management of solid waste and household hazardous waste (incorporates the county's source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste). Waste will be recycled in a manner consistent with applicable LORS.
Oakley Municipal Code, Title 4 Public Health, Safety & Welfare Regulations, Chapter 20 – Solid Waste Collection & Regulations	Any construction, demolition and renovation project within the City which has a total cost of $100,000 or more shall be subject to this section. Upon applying for a building permit, the Applicant shall describe, on forms provided by the City, how the Applicant will divert fifty percent or more of all C&D debris from the waste stream.
City of Antioch Municipal Code Article II, Title 6, Chapter 3.	Any construction, demolition and renovation project within the City which has a total cost of $75,000 or more shall be subject to this section. Projects which exceed this cost shall submit a Waste Management Plan in accordance with this article.

The evidence on this topic was undisputed. (3/15/11 RT 67-77, Exs. 1, § 5.14; Appendix 5.14, 2 [Response 12]; 8; 13; 14; 40; 46; 50; 55; 300, §. 4.13.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site History

E. I. du Pont de Nemours and Company (DuPont) operated a chemical manufacturing facility known as the Antioch Plant at 6000 Bridgehead Road in Oakley, California. Facility operations began in 1956 and ceased by 1999. The former Antioch Plant site - now known as the DuPont Oakley site - is under investigation and remediation under the Resource Conservation and Recovery Act (RCRA), with the intended goal of redeveloping the site as a business park.

The DuPont Oakley site was subdivided into four areas and a separate wetlands area for evaluation of soil, soil gas, and sediment contamination. According to the evidence, the 21.95-acre OGS site is within an area identified as the Western Development Area (WDA). In 2006, the California Department of Toxic Substances Control (DTSC) released the WDA and Eastern Development Area from further regulatory oversight.

The evidence contains documentation of the scope and nature of remedial field investigations performed by DuPont. Arsenic, lead, organolead, and

tetrachloroethene were identified as primary constituents of concern (COCs) in soils. COCs detected in the groundwater at concentrations exceeding applicable state or federal water quality objectives primarily include arsenic, organolead, carbon tetrachloride, tetrachloroethene, 1,2 dichloroethane, 1,2 – dibromoethane, and Freon 11 and 13. As a result, regular groundwater monitoring and performance monitoring of a subsurface permeable reactive barrier continue are ongoing at the site. (Exs. 1, p. 5.14-2, 300 p. 4.13-5 – 4.13-6.)

2. Existing Site Conditions - Phase I and Phase II Environmental Site Assessments

a. Du Pont's Investigation

The Commission's certification process requires a Phase I Environmental Site Assessment (ESA) to identify potential or existing releases of hazardous substances or contamination at or adjacent to the project site, or within or adjacent to the project's linear corridors. The evidence shows that in 2004 DuPont conducted a Phase I ESA for the 44.4-acre WDA, which includes the OGS site.

The Phase I ESA report concluded that soil contamination from past uses of the property is unlikely but the existing electrical substation and former aboveground storage tank are areas of potential concern. And, because a former manufacturing area is adjacent to the WDA parcel, the Phase I ESA indicates that constituents related to the manufacturing area could have been present in the WDA soil.

In view of these potential hazardous conditions, DuPont prepared a Phase II ESA report in 2004 with the objective of establishing baseline conditions. This objective is consistent with the Energy Commission requirement that a Phase II ESA must be conducted to identify the extent of possible contamination and to discuss appropriate mitigation measures whenever potential hazardous conditions are identified.

DuPont's Phase II ESA report concluded that all of the soil detections except arsenic were below their respective potential risk-based screening concentrations Arsenic appears to be present at background concentrations (RBSCs). Regarding groundwater, the Phase II report concluded that although there is some contamination to the east of the WDA, modeling and analysis shows low potential for further plume migration toward the west. The report also concluded

that there is a low likelihood of cross-gradient migration of contaminated groundwater from the adjacent manufacturing areas to the east of the WDA. Nonetheless, DuPont installed four sentry wells to monitor groundwater plume constituent concentrations and ensure that the concentrations remain below site-specific water quality objectives.

In 2006, DTSC issued a decision of Corrective Action Completion without controls for three parcels of the DuPont property, including the WDA, and indicated that the parcels are suitable for unrestricted land use development. (Exs. 1, pp. 5.14-2 – 5.14-3, 300, pp. 4.13-6 – 4.13-7.)

The evidence indicates that the ESAs were conducted in accordance with the methods prescribed by the American Society for Testing and Materials. The record includes copies of DuPont's Phase I and Phase II ESAs.

b. Applicant's Investigation

In January 2010, the Applicant submitted a Due Diligence Summary Report to the Energy Commission and in March 2010, submitted a Phase I ESA to the Commission for the transmission line corridor. (Exs. 13; 300, p. 4.13-6.)

The Applicant's Phase I ESA identified unrestricted and unauthorized disposal of waste along the transmission route. The waste included plastic, glass, metal, shingles, lumber, a water heater, and similar items. Due to the amount and variety of unauthorized solid waste along the transmission line route, we have adopted Condition of Certification **WASTE-1**, which requires the project owner to collect and dispose of solid waste along the transmission route where PG&E has a legal right to remove waste before construction. (Ex. 300, p. 4.13-8.)

And, in light of the fact that the Phase I ESA and Due Diligence Report identified recognized environmental conditions (REC)[3] associated with the OGS site and linear facility corridors, we have adopted Conditions of Certification **WASTE-2** and **–3**. Under **WASTE-2**, before initiating any earthwork on the project site, the project owner must prepare, a Soils Management Plan for proper handling, storage and disposal of contaminated soils and submit it to the Energy Commission Compliance Project Manager for approval. **WASTE-3** requires the

[3] A REC is defined by the ASTM as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substances or petroleum

project owner to make an experienced and qualified Professional Engineer or Professional Geologist available for consultation during site characterization, soil grading or soil excavation to determine appropriate actions to be taken if contaminated soil is encountered.

Conditions **WASTE-2** and **-3** are consistent with Conditions of Certification **WORKER SAFETY-1** and **WORKER SAFETY-2**, which ensure that potential contamination is appropriately identified, disposed of and managed so that worker health and safety is protected and potential environmental impacts are not exacerbated.

3. Construction Impacts and Mitigation

Construction of the project and its associated facilities will generate both non-hazardous and hazardous wastes. With implementation of source reduction and recycling, the amount of waste generated during project construction is expected to be minimal. (Exs. 1, pp. 5.14-3 – 5.14-6; 300, pp. 4.13 8 - 4.13.10.)

a. Non-Hazardous Wastes

Approximately 220 tons of non-hazardous solid wastes will be generated during construction, including scrap wood, concrete, steel/metal, paper, glass, and plastic waste. Recyclable materials will be separated and removed to recycling facilities and non-recyclable materials will be collected and deposited at Class III landfills in accordance with applicable LORS.

The City of Oakley operates a Construction and Demolition (C&D) Waste Diversion Program. In accordance with the C&D program, the project owner must prepare a plan that demonstrates how the project will divert at least 50 percent of all soil, rock, and gravel and at least 50 percent of all construction and demolition debris to Oakley. This requirement is contained in Condition of Certification **WASTE-6**, which also requires the project owner to prepare a waste management plan for the transmission line demolition and construction. Implementation of Condition of Certification **WASTE-6** will ensure that the OGS Project owner complies with Oakley's C&D program.

The evidence further establishes that all non-recyclable non-hazardous wastes will be collected by a licensed hauler and disposed of in a solid waste disposal

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products into structures on the property or into the ground, groundwater, or surface water of the property. (Ex. 300, p. 4.13-8.)

facility, in accordance with Title 14, California Code of Regulations, §17200 and following.

Non-hazardous liquid wastes include sanitary wastes, equipment washwater, and dust suppression drainage. Sanitary wastes will be collected in portable, self-contained toilets and pumped periodically for disposal at an appropriate facility. Potentially contaminated wastewater will be contained at designated collection areas and tested before transport to an appropriate wastewater treatment facility. See the **Soil and Water Resources** section of this Decision for further discussion of OGS wastewater management.

b. Hazardous Wastes

Less than one ton of hazardous wastes will be generated during construction. The wastes will include liquid and solid wastes such as empty hazardous material containers, solvents, waste paint, oil absorbents, used oil, oily rags, batteries, and cleaning wastes. Hazardous materials that cannot be recycled or used for energy recovery will be properly marked, transported to, and deposited at a Class I hazardous waste facility by licensed hazardous waste collection and disposal companies. The disposal methods described in the evidentiary record are consistent with applicable LORS. To ensure LORS compliance, we adopt Condition of Certification **WASTE-5**, which requires the project owner to implement an approved Construction Waste Management Plan to ensure compliance with applicable LORS. Condition **WASTE-7** requires the project owner to obtain a hazardous waste generator identification number from the U.S. Environmental Protection Agency (USEPA) before generating any hazardous wastes during project construction and operation. Condition **WASTE-8** requires the project owner to notify the Energy Commission's Compliance Project Manager (CPM) whenever any waste management related enforcement action is initiated by a local, state, or federal authority concerning the project or its waste disposal contractors. (Exs. 1, pp. 5.14-5 – 5.14-6300, pp. 4.13-8 - 4.13-9.)

In the event that construction excavation, grading or trenching activities for the proposed project encounter potentially contaminated soils, specific handling, disposal, and other precautions may be necessary pursuant to hazardous waste management LORS. We concur with Staff's determination that Conditions of Certification **WASTE-1**, **WASTE-2**, **WASTE-3** (discussed above), and **WASTE-4** would be adequate to address any soil contamination contingency that may be encountered during construction of the project and would ensure compliance with LORS. Under **WASTE-4**, if potentially contaminated soils are identified during

site characterization, excavation, or grading then the Professional Engineer or Geologist must inspect the site, determine the need for remediation, engage in sampling and evaluation as appropriate, and recommend an appropriate course of action. Remediation would occur under the guidance of the CPM and DTSC.

Project compliance with LORS should be sufficient to ensure that no significant impacts would occur as a result of project waste management activities.

4. Operation Impacts and Mitigation

During operation, the project will generate hazardous and non-hazardous wastes subject to regulatory review. (Exs. 1, p. 5.14-6; 300, pp. 4.13-10 – 4.13-11.) Applicant's AFC Table 5.14-2, replicated below as **Waste Management Table 2,** summarizes the anticipated operation waste streams, estimated waste quantities, and proposed disposal methods.

Waste Management Table 2

TABLE 5.14-2
Hazardous Wastes Generated during Operations

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Empty hazardous material containers	Operation and maintenance of plant	Drums, containers, totes*	<1 ton	Hazardous and nonhazardous	Containers <5 gal will be disposed as normal refuse; containers >5 gal will be returned to vendors for recycling or reconditioning
Lubricating oil	Small leaks and spills from the gas turbine lubricating oil system	Hydrocarbons	500 gal/year	Hazardous	Cleaned up using sorbent and rags, disposed of by certified oil recycler
Lubricating oil filters	Gas turbine lubricating oil system	Paper, metal, and hydrocarbons	600 lbs/year	Hazardous	Recycled by certified oil recycler
Laboratory analysis waste	Water treatment	Sulfuric acid	400 gal/year	Hazardous	Recycled by certified recycler
HRSG NOx and CO catalyst units	HRSG (Use tends to be 5 to 10 years)	Metal and heavy metals, including vanadium	420,000 lbs (every 5 to 10 years)	Hazardous	Recycled by manufacturer
Oily rags	Maintenance, equipment wipe down, and similar activity	Hydrocarbons, cloth	One 55-gal container	Hazardous	Recycled by certified oil recycler
Oil sorbents	Cleanup of small spills	Hydrocarbons	150 lbs/year	Hazardous	Recycled or disposed of by certified oil recycler

HRSG = heat-recovery steam generator
NOx = oxides of nitrogen
CO = carbon monoxide

Source: Ex. 1, AFC

All non-hazardous solid wastes will be recycled to the extent feasible, and non-recyclable wastes will be regularly transported to a local solid waste disposal facility in accordance with applicable LORS. The Applicant estimated that the project would generate approximately 35 tons of non-hazardous solid waste per year.

Management of non-hazardous liquid wastes is described in the **Soil and Water Resources** section of this Decision. In summary, wastewater with potential for contamination with oil or water grease will be routed to the oil/water separator. Effluent form the oil/water separator will be combined with other process wastewater and sanitary wastewater and pumped by way of a wastewater lift station to the Ironhouse Sanitary District sewer forcemain that is expected to be constructed (as a separate and distinct project of ISD, not as part of this OGS project) in Bridgehead Road.

OGS operation will generate three tons of hazardous wastes per year. As indicated above in **Waste Management Table 2**, hazardous wastes include used hydraulic fluids, oils, greases, oily filters and rags, spent SCR catalyst, cleaning solutions and solvents, and batteries. These hazardous wastes will be temporarily stored on-site and subsequently transported by licensed hazardous waste haulers to authorized disposal facilities in accordance with applicable LORS. (Exs. 1, pp. 5.14-6 – 5.14-7; 300, pp. 4.3-10 - 4.13-11.)

To ensure proper handling of operation waste streams, Condition **WASTE-9** requires the project owner to implement an Operation Waste Management Plan to identify all hazardous and non-hazardous wastes and the methods of managing the wastes consistent with regulatory requirements and the evidentiary record. To ensure proper cleanup and management of contamination caused by unauthorized releases of hazardous wastes, Condition **WASTE-10** requires the project owner to report, clean up, and remediate any hazardous materials spills or releases in accordance with applicable law. Condition **WASTE-7** (hazardous waste generator identification number), *supra*, and Condition **WASTE-8** (enforcement action)*, supra*, also apply to waste management during operations.

The **Hazardous Material Management** section of this Decision also describes the requirements for hazardous material management, including spill reporting, containment, spill control, and countermeasures.

5. CEQA Significance Criteria

As mentioned above, under the CEQA Guidelines, the project could result in a significant environmental impact if it is, (1) located on a site included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 ("Cortese List"), and/or (2) have solid waste disposal needs beyond the capacity of appropriate landfills to accommodate the project's waste disposal needs.

a. Cortese List

The evidence establishes that the OGS site is located on a Cortese-listed site, which is the above-discussed DuPont Western Development Area. The results of the Phase I and Phase II ESA investigations (discussed above) indicate that corrective action and site cleanup have been underway on the impacted parcels but that the OGS site requires no further investigation. Thus, it is highly unlikely that any impacts will result from the nearest Cortese-listed property (the WDA), nor is it likely that the OGS site will present a significant hazard to the public. (Ex. 1, p. 5.14-8.)

b. Potential Impacts on Waste Disposal Facilities

Regarding the project's compliance with the 50 percent waste diversion program established by the Integrated Waste Management Compliance Act,[4] the evidence shows that the City of Oakley operates the Construction and Demolition (C&D) Waste Diversion Program. Any construction, demolition and renovation project within the City which has a total cost of $100,000 or more shall be subject to Oakley Municipal Code Title 4, Chapter 20, and Section 4.20.324. The project owner will divert 50 percent or more of all C&D debris from the waste stream. All non-recyclable wastes would be collected by a licensed hauler and disposed of in a solid waste disposal facility, in accordance with Title 14, California Code of Regulations, §17200 et seq. Compliance with Condition of Certification **WASTE-6** will ensure that the OGS Project owner complies with the City's C&D Ordinance. Compliance with Condition **WASTE-6** will ensure state and local LORS compliance regarding proper management of project wastes and reduction of the project's potential impacts on local landfills to less than significant levels.

[4] Public Resources Code Section 40000 et seq.; Title 14, California Code of Regulations, Section 17387 et seq.

Construction and operation of the project will respectively generate approximately 202 tons and 35 tons per year of non-hazardous solid waste. The solid wastes will be temporarily stored onsite and then recycled or deposited at a Class III landfill. (Exs. 1, pp. 5.14-5 - 5.14-6; 300, p. 4.13-11.)

There are three Class III non-hazardous solid waste disposal facilities located in Contra Costa County: Acme Landfill (Martinez, CA), Keller Canyon Landfill (Pittsburg, CA), and Contra Costa Transfer Station and Recovery (Martinez, CA). The evidence shows that there is sufficient capacity at these facilities to handle the project's construction and operation non-hazardous solid wastes over the life of the project, amounting to less than one percent of the total landfill capacity. (Exs. 1, pp. 5.14-8 - 5.14-9 [Table 5.14-3], 300, p. 4.13-11.)

Hazardous wastes will be transported to one of two available Class I landfills: Clean Harbor Buttonwillow Landfill in Kern County and Chemical Waste Management Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II and III waste. Evidence indicates that the quantity of hazardous wastes deposited by the project will be less than one percent of the available landfill capacity. There is sufficient remaining capacity at these facilities to handle the project's hazardous wastes during its operating lifetime. In addition to the Class I landfills, there are several commercial hazardous waste treatment and recycling facilities in California that can process project-related hazardous wastes. (Exs. 1, pp. 5.14-10 – 5.14-11; 300, p. 4.13-12.)

6. Cumulative Impacts and Mitigation

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effects of the proposed project. (Pub. Res. Code § 21083, Cal. Code Regs., tit. 14, sections 15064(h), 15065(c), 15130, 15355.)

Evidence shows that the quantities of solid and hazardous wastes generated by OGS will add to the total quantities of waste generated in Contra Costa County and in California but that these quantities will be relatively low: approximately 6,250 cubic yards of solid waste during construction and operation, 1,010 and 5,250 cubic yards, respectively. The OGS Project's contribution would likely represent less than one percent of the county's total waste generation. Moreover, there is adequate recycling and landfill capacity in California to recycle and dispose of the wastes generated by OGS. As a result, the added waste

generated by OGS Project will not result in significant cumulative waste management impacts. (Exs. 1, p. 5.14-11; 300, pp. 4.13-11 - 4.13-12.)

Therefore, the cumulative impact of the proposed OGS Project and other likely projects on solid waste recycling and disposal capacity would not be significant.

7. Compliance with LORS

As discussed above we conclude that our adoption of the Conditions of Certification below will ensure that the proposed RSEP complies with CEQA and all other applicable LORS (as identified above in Table 1 and again in **Appendix A** to this Decision) regulating the management of hazardous and non-hazardous wastes during both facility construction and operation. (Exs. 1, pp. 5.14-14 – 5.14-18; 300, pp. 4.13-12 - 4.13-13.)

8. Environmental Justice

Staff considered the minority and low-income populations in the project area in its cumulative impacts analysis. Since there are no significant adverse direct or cumulative waste management impacts, there are no environmental justice issues under this topic. (Ex. 300, p. 4.13-13.)

9. Agency and Public Comment

The City of Oakley provided recommended Conditions of Approval for the Energy Commission's consideration in a letter dated April 5, 2010. The letter includes waste-management related recommendations for Site Plan/Architecture and Grading Plan that the City – if it had permitting authority over the OGS Project – would include in findings for a City-issued Conditional Use Permit. Regarding Site Plan/Architecture, the City would require trash enclosures to match Oakley Disposal and City standards and provide adequate space to accommodate both trash and recycling, as determined by the City's Community Development Director. Trash enclosures would be required to be constructed with a roof to match the building materials and have metal gates.

The City would require trash storage to be contained inside the buildings. This would include pallets, boxes, cardboard, and the like unless they are stored outside within trash enclosures. And, the City's Grading Plan, the City would prohibit the burying of any construction debris on the construction site.

Staff addressed the City of Oakley's concerns and recommendations through Staff-proposed Condition of Certification **WASTE-5**, which requires the project owner to prepare a Construction Waste Management Plan consistent with Oakley Disposal and City standards for solid waste, hazardous waste, recycled waste and construction debris. As shown below, we have adopted Staff's proposed Condition **WASTE-5**. (Ex. 300, pp. 4.13-13.)

The City of Antioch also commented on the Preliminary Staff Assessment. Antioch asked that the project owner be required to comply with the City Waste Management Plan if project costs exceed $75,000. Staff revised its proposed Condition of Certification **WASTE-6** to require the applicant to comply with the city of Antioch's C & D Debris Program requirements specified in the Antioch Municipal Code. Staff includes this requirement in its LORS discussions. We adopted revised **WASTE-6**. (Ex. 300, p. 4.13-13 – 4.13-14.)

Oral and written comments were received from the owners of Lauritzen Yacht Harbor and on behalf of Driftwood Marina. (3/25/11 RT 73-90.) Although the comments were raised under the heading of "hazardous materials, we find that they relate to the topic of Waste Management as they express concern that the project site was contaminated by prior DuPont manufacturing activities and there is insufficient information to know whether the project' use of the site will cause or contribute to cumulative downstream contamination impacts." These concerns are adequately addressed by the evidence of record and discussed above regarding the results of the two Phase I ESAs and one Phase II ESA performed for the WDA (including the OGS Project site) and California Department of Toxic Substances Control (DTSC's) prior oversight of the property. The ESAs for the OGS site and transmission line corridor indicate existing conditions at the OGS Project site include areas where prior site uses may have resulted in releases of hazardous substances or soil contamination. In particular, as discussed above, the Phase II ESA report concluded that all of the soil detections except arsenic were below their respective potential risk-based screening concentrations Arsenic appears to be present at background concentrations. (RBSCs) (Ex. 1, p. 5.14-3.) Regarding groundwater, the Phase II report concluded that although there is some contamination to the east of the WDA, modeling and analysis shows low potential for further plume migration toward the west. The report also concluded that there is a low likelihood of cross-gradient migration of contaminated groundwater from the adjacent manufacturing areas to the east of the WDA.

Nonetheless, DuPont installed four sentry wells to monitor groundwater plume constituent concentrations and ensure that the concentrations remain below site-specific water quality objectives. (*Id*.) Furthermore, in 2006, DTSC issued a decision of Corrective Action Completion without controls for three parcels of the DuPont property, including the WDA, and indicated that the parcels are suitable for unrestricted land use development. Also, as discussed above, in 2006, DTSC released the WDA and Eastern Development Area from further regulatory oversight. (*Id*.)[5] (Ex. 300, pp. 4.13-6, 4.13-13.)

Because the evidence indicates there could be potential for impacts, we require implementation of Conditions of Certification **WASTE-1**, **WASTE-2**, **WASTE-3** and **WASTE-5** prior to OGS construction.

Thus, we find that the record includes adequate analysis of the site's potential to cause or exacerbate hazardous materials contamination. The evidence shows little or no potential for the OGS Project to cause soil or water-related contamination impacts at the site or within the project area. Therefore, the cumulative impact of the proposed OGS Project and other existing or likely projects relating to soil or water contamination is would not be significant. Also refer to the **Soil and Water Resources** and **Hazardous Materials Management** sections of this Decision for further discussion of potential impacts and related mitigation.

FINDINGS OF FACT

Based on the evidence, the Commission makes the following findings:

1. Applicant's Phase I and Phase II Environmental Site Assessments (ESAs) for the site and transmission line corridor indicate existing conditions at the OGS Project site include areas where prior site uses may have resulted in releases of hazardous substances or soil contamination. To address these concerns, Staff will require that Conditions of Certification **WASTE-1**, **WASTE-2**, **WASTE-3** and **WASTE-5** be completed prior to construction.

2. The project owner will implement appropriate characterization, disposal, and remediation measures to ensure that the potential risk of exposure to unknown contaminated soils at the site or along the gas pipeline corridor is reduced to insignificant levels.

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[5] We also note that DTSC submitted a letter stating that is has not comment on Preliminary Staff Assessment – Part A. (Ex. 300, p. 4.13.13.)

3. The project will generate non-hazardous and hazardous wastes during excavation, construction, and operation.

4. The project will obtain a hazardous waste generator identification number from the United States Environmental Protection Agency.

5. The project will recycle non-hazardous and hazardous wastes to the extent feasible and in compliance with applicable law.

6. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate Class I landfills.

7. Solid non-hazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the project vicinity.

8. Liquid wastes will be classified for appropriate disposal and managed in accordance with the Conditions of Certification listed in the **Soil and Water Resources** section of this Decision.

9. Disposal of project wastes will not result in any significant direct, indirect, or cumulative impacts on existing waste disposal facilities.

CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential adverse impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.

2. The management of project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall dispose of existing waste along the transmission line route within parcels where PG&E has the legal right to remove waste (including aboveground tanks, empty drums, and other equipment and materials) prior to initiation of construction of the transmission line for the Oakley Generating Station (OGS). PG&E will ensure proper handling of waste from areas disturbed during the construction of the transmission line.

Verification: At least 60 days prior to the start of site mobilization to construct the transmission line, the project owner shall provide to the CPM a list of the

types and amount of existing waste to be disposed of from the Oakley Generating Station (OGS) transmission route.

WASTE-2 Prior to initiating any earthwork on the project site, the project owner shall prepare and submit to the CPM for approval, a Soils Management Plan (SMP). The SMP should include but is not limited to the following:

- Land use history, including description and locations of known contamination;
- An earthwork schedule;
- The project owner shall describe methods which will be used to properly handle and/or dispose of soil which may be classified as hazardous or contain contaminants at levels of potential concern, including the identification of legal discharge areas;
- The SMP shall discuss, as necessary, the reuse of soil on site in accordance with applicable criteria to protect construction workers or future workers on site;
- A SMP summary report, which includes all analytical data and other findings, must be submitted once the earthwork has been completed.

Verification: At least 60 days prior to any earthwork, including those earthwork activities associated with the site mobilization, ground disturbance, or grading as defined in the general Conditions of Certification the project owner shall submit the Soils Management Plan to the CPM for approval.

WASTE-3 The project owner shall provide the résumé of an experienced and qualified Professional Engineer or Professional Geologist, who shall be available for consultation during site characterization (if needed), excavation and grading activities, to the CPM for review and approval. The résumé shall show experience in remedial investigation and feasibility studies.

The Professional Engineer or Professional Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the résumé to the CPM for review and approval.

WASTE-4 If potentially contaminated soil is identified during site characterization, excavation, or grading at either the proposed site or linear facilities, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Professional Engineer or Professional Geologist shall inspect the site, determine the need for

sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, representatives of DTSC, and the CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Professional Engineer or Professional Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Professional Engineer or Professional Geologist, significant remediation may be required, the project owner shall contact the CPM and representatives of the DTSC for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the Professional Engineer or Professional Geologist to the CPM within five days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-5 The project owner shall prepare a Construction Waste Management Plan, which is consistent with Oakley and Antioch Disposal and City standards, for all wastes generated during construction of the facility, and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- A description of all construction waste streams, including projections of frequency, amounts generated and hazard classifications; and
- A brief description waste management laws, ordinances and regulations.

  a. Management methods to be used for each waste stream, including temporary onsite storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans;

  b. Removal of existing waste, where the project owner has the legal right, within the transmission line and project area; and

A detailed description of the worker training program which will be provided to assure that appropriate waste management procedures are used in the handling, storage and disposal of operation wastes.

Verification: The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.

WASTE-6 The project owner shall provide a Construction and Demolition Debris Recycling (C&D debris) plan demonstrating how they will divert at least 50 percent of all soil, rock and gravel, and at least 50 percent of all construction and demolition debris to the City of Oakley per Oakley Municipal Code 4, Chapter 20, Section 4.20.324. The project owner shall ensure compliance with all of City of Oakley's diversion program requirements and shall provide proof of compliance documentation to the City and the CPM, consistent with the City's normal reporting requirements. Project mobilization and construction shall not proceed until the City issues an approval document, consistent with the City's normal building permit approval process, and the CPM provides written concurrence.

The project owner shall also provide a Waste Management Plan for the transmission line demolition and construction consistent the City of Antioch Municipal Code Article II, Title 6, Chapter 3. The project owner shall ensure compliance with all of City of Antioch's waste program requirements and shall provide proof of compliance documentation to the City and the CPM, consistent with the City's normal reporting requirements. Transmission line mobilization and construction within the limits of the City of Antioch shall not proceed until the City issues an approval document, consistent with the City's normal building permit approval process, and the CPM provides written concurrence.

Verification: Prior to the start of any construction activities, the project owner shall submit to the City Oakley, California documentation consistent with the requirements of the City's C & D Debris Program, along with the normally required deposit and administrative fees. At least 60 days prior to the start of any construction activities, the project owner shall submit the proposed C & D Debris Plan, along with any comments received from the City of Oakley, to the CPM for review and approval. Project mobilization and construction shall not proceed until the City of Oakley issues an approval document, consistent with the City's normal building permit approval, and the CPM provides written concurrence. Not later than 60 days after completion of project construction, the project owner shall submit documentation of compliance with the diversion program requirements to the CPM and City. The required documentation shall include a Recycling and Reuse Summary Report (as set forth by the county program), along with all necessary receipts and records of measurement from entities receiving project wastes.

Prior to the start of any transmission line construction activities within the City of Antioch limits, the project owner shall submit to the City of Antioch, documentation consistent with the requirements of the City's C & D Debris

Program, along with the normally required deposit and administrative fees. At least 60 days prior to the start of any transmission line construction activities, the project owner shall submit the proposed Waste Management Plan, along with any comments received from the City of Antioch, to the CPM for review and approval. Project mobilization and construction shall not proceed until the City of Antioch issues an approval document, consistent with the City's normal building permit approval, and the CPM provides written concurrence. Not later than 60 days after completion of project construction, the project owner shall submit documentation of compliance with the diversion program requirements to the CPM and City. The required documentation shall include a Waste Management Plan completed in accordance with the City's requirements.

WASTE-7 The project owner or construction contractor shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (USEPA) prior to generating any hazardous waste during project construction. The project owner shall obtain a hazardous waste generator identification number prior to generating any hazardous waste during operations.

Verification: The project owner shall keep a copy of the identification number on file at the project site and provide documentation of the hazardous waste generation and notification and receipt of the number to the CPM in the next scheduled Monthly Compliance Report after receipt of the number. Submittal of the notification and issued number documentation to the CPM is only needed once unless there is a change in ownership, operation, waste generation, or waste characteristics that requires a new notification to USEPA. Documentation of any new or revised hazardous waste generation notifications or changes in identification number shall be provided to the CPM in the next scheduled compliance report.

WASTE-8 Upon notification of any impending waste management-related enforcement action related to project site activities by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts for the project, and describe the owner's response to the impending action or if a violation has been found, how the violation will be corrected.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed.

WASTE-9 The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the facility, and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- A detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications;
- Management methods to be used for each waste stream, including temporary onsite storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans;
- Schedule for regular removal of waste, where the project owner has the right, within the transmission line and project area;
- A detailed description of the worker training program which will be provided to assure that appropriate waste management procedures are used in the handling, storage and disposal of operation wastes.
- Information and summary records of conversations with the local Certified Unified Program Agency and the DTSC regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;
- A detailed description of how facility wastes will be managed, and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and
- A detailed description of how facility wastes will be managed and disposed upon closure of the facility.

Verification: The project owner shall submit the Operation Waste Management Plan to the CPM for approval no less than 30 days prior to the start of the project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary.

The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.

WASTE-10 The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned-up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.

Verification: The project owner shall document all unauthorized releases and spills of hazardous substances, materials, or wastes that occur on the project property or related pipeline and transmission corridors. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; amount of contaminated soil/material generated; how release was managed and material cleaned-up; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release. Copies of the unauthorized spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

VI. ENVIRONMENTAL ASSESSMENT

A. BIOLOGICAL RESOURCES

In its power plant licensing process, the Energy Commission considers potential impacts on biological resources, including state and federally listed species, species of special concern, wetlands, and other resources of critical biological interest such as unique habitats. The evidence contained in the record regarding potential project impacts to biological resources is undisputed regarding all areas except the appropriate mitigation for impacts to species at the Antioch Dunes National Wildlife Refuge. (3/15/11 RT 67-77, 112-113, 120- 132, 3/25/11 RT 7-9; Exs. 1 § 5.2, Appendix 5.2; 18; 19; 20; 29; 31; 32; 42; 46; 48; 50; 53; 55; 61; 62; 300, § 4.2; 404.)

Under the California Environmental Quality Act, a project could result in a significant impact to biological resources, if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan. (CEQA Guidelines Appendix G.)

This evaluation assesses the project's impacts under the identified CEQA significance thresholds and otherwise, and determines whether mitigation is

necessary to reduce any potentially significant impacts and to ensure compliance with applicable laws, ordinances, rules, and standards (LORS). The LORS are identified and more fully discussed below under Compliance with LORS.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The site is located in the northwestern corner of the City of Oakley, Contra Costa County, California, immediately northeast of the City of Antioch and just east of State Route 160. The OGS site will occupy approximately 21.95 acres. The 20-acre construction laydown area is adjacent to and east of the OGS site. The construction laydown area includes a 6.5 acre paved area and a 13.2 acre unpaved area. Three temporary soil stockpiles totaling 7.2 acres would be located at varying distances within 1,500 feet north of the OGS site.

The site is bounded to the south by the BNSF railroad, to the west by the Pacific Gas and Electric (PG&E) Antioch Terminal (a natural gas transmission hub) and Bridgehead Road, to the north by industrial or vacant industrial property owned by DuPont, and to the east by DuPont's titanium dioxide landfill area.

The site is approximately 0.6 miles from the southern bank of the San Joaquin River, approximately six miles southeast of its confluence with the Sacramento River. Regionally, the confluence of these two major river systems comprise the Sacramento-San Joaquin River Delta, which extends east from Suisun Bay, north to the City of Sacramento and east to the City of Stockton.

The evidence describes several significant ecological areas within five miles of the proposed OGS site, including the Antioch Dunes National Wildlife Refuge. This refuge contains the only remaining remnants of riverine dunes, which originally covered 10 miles of the southern shore of the San Joaquin River and supports 14 special-status and/or endemic species, including the last known natural populations of Lange's metalmark butterfly, Antioch Dunes evening primrose, and Contra Costa wallflower. (Ex. 300, pp. 4.2-6 – 4.2-7.)

2. East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECCC HCP/NCCP or Plan)

Except for 1.4 miles of the transmission line route and 12 related towers, the project is within the jurisdiction of the ECCC HCP/NCCP. The Plan enables Contra Costa County, the Contra Costa County Flood Control and Water Conservation District, the East Bay Regional Park District and the cities of Brentwood, Clayton, Oakley, and Pittsburg (collectively, the "Permittees") to more effectively and consistently control endangered species permitting for activities and projects within their respective jurisdictions with a coordinated, regional approach.

Under the Plan, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) have provided regional permits to the Permittees covering 28 listed species. In turn, the Permittees may extend permit coverage to projects within their respective jurisdictions. Instead of seeking endangered species approvals from USFWS and CDFG, the Applicant is seeking approvals under the Plan. (Ex. 1, p. 5.2-65.)

Mitigation fees required under the Plan are paid to the the East Contra Costa County Habitat Conservancy ("Conservancy"). The Conservancy uses the paid fees to offset losses of land cover types, covered species habitat, and other biological values. (Ex. 300, p. 4.2-8.)

Even though a portion of the transmission route is within the City of Antioch and outside of Plan boundaries, the Conservancy has agreed to process the Applicant's permit application to include the out-of-plan transmission line area. The record summarizes the process followed by the Applicant in seeking the required approvals under the ECCC HCP/NCCP. (Exs. 61; 300, pp. 4.2-8 4.2-9; 3/25/11 RT 123-132.)

The Plan does not a not apply to state and federally listed species occurring at the nearby Antioch Dunes National Wildlife Refuge.

3. Project Area Special-Status Species

The evidence shows that no special-status plant species were observed within the OGS Project area during biological surveys. Nor are they expected to occur in the project area or along the transmission line or sanitary sewer force main

routes, given that these areas provide only marginally suitable habitat for these species.

There is suitable habitat on site and in the project area or in the vicinity of the project area for several special-status wildlife species. The evidence identifies and describes survey results for the following special-status wildlife species that could potentially be affected by the project: California Tiger salamander, California red legged frog, Western pond turtle, Silvery legless lizard, Giant garter snake, Golden eagle, Loggerhead Shrike, Northern harrier, Swainson's hawk, Western burrowing owl, White Tailed Kite, Song Sparrow "Modesto" Population, Yellow Warbler, Salt Marsh Common Yellowthroat, American badger, San Joaquin kit fox, Pallid bat, and Western red bat.

Wetland E, located on the project site, is dominated by wetland plant species including broadleaf cattail and a stand of common tule with arroyo willow on the slope between the water and top of the bank. Red-winged black birds have been observed nesting in Wetland E. (Ex. 300, pp. 4.2- 9 – 4.2-19.)

4. Construction Impacts

a. Special Species Habitat

Project construction will result in the permanent disturbance of approximately 16.7 acres and temporary disturbance of approximately 38.4 acres. The site is currently in agricultural production as a vineyard with a central cluster of six interior live oaks. Approximately 18 trees located within the OGS site would be removed. (Ex. 300, pp. 4.2-9 – 4.2-23.)

The existing 60-kV towers within the transmission line right of way are located in a variety of land uses including industrial, vacant industrial, agricultural, commercial, residential, recreational, and ruderal (i.e., non-native) grassland in vacant lots. The ruderal grassland may provide suitable habitat for the special-status species such as White-Tailed Kite, Silvery legless lizard, Western burrowing owl, and San Joaquin kit fox. Trees located along the transmission line right-of-way may provide suitable nesting habitat for a variety of birds. (Ex, 300, p. 4.2-11.)

Portions of the laydown area consist of non-native woodland and acre ruderal grassland dominated by ripgut brome and red-stemmed filaree. A row of

approximately 24 mature Tasmanian blue gum trees separates the two sections of the laydown area. Approximately six trees will be removed. These trees have sufficient canopy cover and height to potentially support nesting and roosting raptors and bird and bat species. (Exs. 31; 300, p. 4.2-10.)

Two of the stockpile areas will be located in ruderal grassland, separated by a row of she-oaks. The ruderal grassland is dominated by rattail fescue and also contains species such as red maids and common groundsel. The ruderal grasslands may provide nesting and/or foraging habitat for sensitive species. (Ex. 300, p. 4.2-10.)

Because the permanent and temporary OGS-related impacts will affect habitat known to support special-status species, we have adopted mitigation measures for construction in areas that support habitat for the above-described special status species. The measures include Conditions of Certification **BIO-1** (Designated Biologist Selection), **BIO-2** (Designated Biologist Duties), **BIO-3** (Biological Monitor Qualifications), **BIO-4** (Designated Biologist and Biological Monitor Authority), and **BIO-5** (Worker Environmental Awareness Program), **BIO-6** (Biological Resources Mitigation Implementation and Monitoring Plan), and **BIO-7** (General Impact Avoidance and Minimization Measures).

Northern harriers, Loggerhead shrikes, Swainson's hawk, burrowing owls, and other bird species protected by Fish and Game codes and the Migratory Bird Treaty Act could potentially nest or forage in the project area. Construction of the projects could disrupt nesting behaviors or otherwise adversely affect reproductive success of species protected by CDFG Fish and Games codes or the Migratory Bird Treaty Act. Western red bat, pallid bat, and other bat species could also potentially roost or forage within the project area. Conditions of Certification **BIO-9, BIO-10**, **BIO-11**, and **BIO-12** outline a number of impact avoidance and minimization measures for all of these bird and bat species, including specific measures for burrowing owls, bats, and Swainson's hawks based on prescribed agency guidelines.

Portions of the project site including the transmission line corridor could also support denning and burrowing animals such as Western burrowing owls, American badger, and San Joaquin kit foxes. Additional measures outlined in Conditions of Certification **BIO-12**, **BIO-13**, and **BIO-14** outline impact avoidance and minimization measures expected to reduce impacts to each of these species to less than significant levels.

Impacts to potential habitat for Western pond turtle, Giant garter snake, California Tiger salamander, and California red-legged frog could occur from construction in the portion of East Antioch Creek that would be crossed by the transmission line. Measures outlined in **BIO-15**, **BIO-16**, **BIO-17**, and **BIO-18** will reduce the impacts to these species to less than significant levels.

The project owner's one-time payment of approximately $227,408 in mitigation fees to the Conservancy will further reduce to less than significant levels temporary and permanent impacts to the habitat of species covered under the ECCHC/NCC Plan. (Ex. 300, pp. 4.2-1, 4.2-36, 4.2-59.) Conditions of Certification **BIO-21** and **BIO-22** require the project to comply with Plan permitting requirements.

b. Protected Trees

Construction also requires removal of trees protected under City of Oakley and City of Antioch codes. Any impacts to protected trees would be fully mitigated through payments to the City of Antioch and City of Oakley. (Ex. 300, p. 4.2-33.) Implementation of Condition of Certification **BIO-8** (Protected Tree Mitigation Fees) ensures the payment of any required fees. Under **BIO-7**, the project owner will install silt fencing and/or wildlife exclusion fencing to protect trees during construction. (Ex. 300, pp. 4.2-28, 4.2-33.)

c. Construction Noise

OGS would comply with applicable LORS that address noise and vibration impacts to humans. Steam blowing will be the loudest construction activity and is expected to take place approximately 750 feet from Wetland E and the San Joaquin River shoreline. Both locations support a diversity of waterfowl. Pile driving could also result in temporary noise impacts. As discussed above, to minimize impacts to nesting birds and roosting bats during construction, we have adopted Conditions of Certification **BIO-9 and BIO-10**. With the steps outlined in these conditions, noise and vibration impacts from normal project construction would be temporary and less than significant. (Ex. 300, pp. 4.2-36 – 4.2-37.)

d. Construction Lighting

Artificial lighting can significantly disturb wildlife. Lighting for project construction would occur as necessary to maintain project schedules or to perform construction activities that are temperature sensitive. To the extent feasible, construction lighting will be directed to the center of the construction site and shielded to prevent fugitive light from escaping the site. These are requirements of Condition of Certification **VIS-3**. Although there is an existing level of disturbance and lighting already associated with the project area, with implementation Conditions of Certification **BIO-7** and **VIS-3** the OGS will not exacerbate these existing conditions. (Ex. 300, pp. 4.2-37 - 4.2-38.)

5. Operations Impacts.

The evidence establishes that potential direct impacts of OGS operation would result from operational noise and vibration and from lights at night as well as the risk of collision of bat and bird species into stacks of the OGS. Such a power plant operates as a steady, continuous, broadband noise source, unlike most intermittent sounds that make up the majority of the noise environment. Thus, the power plant noise contributes to, and becomes part of, the background noise level, or the sound heard when most intermittent noises cease.

Avian collisions can occur because human structures that are significantly taller than the natural landscape pose a collision risk for birds in flight. The OGS proposes two stacks that would be 155 feet in height. Because structures over 200 feet high create the largest hazard for avian collision, the OGS stacks are not a significant collision hazard. Therefore, avian collision impacts with the OGS are not expected to be significant. In complying with Condition of Certification **BIO-7**, the project owner will install approved bird flight diverters to further lessen the threat of collision. (Ex. 300, pp. 4.2-38 - 4.2-39.)

The evidence also assesses birds' susceptibility to transmission line electrocution. This happens most frequently when a bird attempts to perch on a transmission tower or pole. The majority of bird electrocutions are caused by lines that are energized at voltage levels between 1-kV and 60-kV, and the likelihood of electrocutions occurring at voltages greater than 60-kV is lower because the phase-to-phase and phase-to-ground clearances for lines greater than 60-kV are typically sufficient to prevent bird electrocution. Because OGS transmission lines will be 230-kV, phase-to-phase and phase-to-ground

clearances will be sufficient to minimize bird electrocutions. To avoid potential electrocution impacts, OGS will construct the line in accordance with Avian Powerline Interaction Committee guidelines. This requirement is incorporated in Condition of Certification **BIO-7**. (Ex. 300, pp. 4.2-39 – 4.2-40.)

The evidence also includes analysis of potential impacts from operational lighting impacts. Lighting to be used during project operation may include night lighting for security. However, the project developer proposes to install lighting fixtures that include shields and hoods to minimize fugitive light. For areas where lighting is not required for normal operation, safety, or security, switched lighting circuits would be provided, allowing these areas to remain dark at most times. (Ex. 300, p. 4.2-40.)

Operation noise will result in less than significant impacts with implementation of Condition of Certification **NOISE-4**, which sets limits on the operation noise generated by OGS.

6. Stormwater Runoff

Stormwater runoff at the OGS site currently drains to Wetland E and supports the existing hydrology of the wetland area. Runoff from open areas on the OGS Project site would be conveyed to the proposed bioswales and detention basin which would then be discharged to Wetland E in accordance with local LORS. Runoff from the power block area would be routed through an oil/water separator before being discharged to the sanitary sewer system. Stormwater runoff would be conveyed in accordance with the National Pollutant Discharge Elimination System (NPDES) General Industrial Permit requirements. Impacts to Wetland E are not expected to occur. The **Soil and Water Resources** section of this Decision more fully discusses water quality impacts. (Ex. 300, pp. 4.2-40 – 4.2-41.)

The project would not affect any creeks, drainages, wetlands, or other aquatic resources. Appropriate soil erosion and sediment controls will be implemented on-site to prevent construction materials and/or eroded soils from entering aquatic resources including Wetland E and two wetlands near the stockpiles area. Wetland E is within a conservation easement that was created in 1996 as off-site mitigation for off-site impacts related to the Lauritzen Yacht Harbor. Wetland E is under perpetual conservation easement granted to CDFG.

Conditions of Certification **SOIL & WATER-1**, **SOIL & WATER-2, SOIL & WATER-6** and **BIO-19** (referenced below) will ensure protection of the wetlands.

7. Wetland E Impacts

The Applicant, in coordination with CDFG, developed proposed habitat improvements as part of the Wetland E Monitoring and Adaptive Management Plan that would be implemented as part of the Conditions of Certification for the OGS Project. Goals and objectives include measures to re-establish native vegetation within the conservation easement by planting upland dune vegetation within approximately 0.3 acre of the Wetland E Mitigation Area, implementing noxious weed control methods, replacing non-native trees with coast live oak, blocking the overflow drain into the preserve, and including native plants in the landscape screening plan. Goals and objectives also include maintaining wildlife habitat value and wildlife use within the conservation easement.

As part of the Wetland E Monitoring and Adaptive Management Plan the project owner would submit detailed baseline maps which show the current species composition or cover of wetland vegetation as well as current extent of noxious weed cover as determined by standard vegetation sampling methods. Sampling methods would be fully described in the Wetland E Monitoring and Adaptive Management Plan (see Condition of Certification **BIO-19**). (Ex. 300, pp. 4.2-41 – 4.2-43.)

With implementation of **SOIL&WATER-6, VIS-2**, **BIO-7**, and **BIO-19,** impacts to Wetland E and the surrounding conservation area would be avoided.

8. Indirect and Cumulative Impacts to Species at the Antioch Dunes National Wildlife Refuge

Indirect and cumulative impacts to the Antioch Dunes National Wildlife Refuge (NWR) and three associated protected species would result from nitrogen deposition caused by OGS emissions. The Antioch Dunes NWR contains the last known populations of the federally endangered Lange's metalmark butterfly, federally and state endangered Antioch Dunes evening primrose, and federally and state endangered Contra Costa wallflower.

The greatest threat to these listed species is noxious weed invasion and the resultant cascading effects (e.g., competition, wildfire) are exacerbated by

nitrogen deposition. Nitrogen deposition is the input of nitrogen oxide (NO_X) and ammonia (NH_3) derived pollutants, primarily nitric acid (HNO_3), from the atmosphere to the biosphere. Nitrogen deposition can lead to impacts on sensitive species that include direct toxicity, changes in species composition among native plants, and enhancement of invasive species.

Noxious weeds (e.g., yellow starthistle, winter vetch, and ripgut brome) are the greatest threat to these endangered species at the Antioch Dunes. Invasive, non-native vegetation out-competes these species for space, sunlight, moisture, and nutrients as well as increasing fuel loads. Studies show that excessive nitrogen deposition is strongly correlated with the growth of non-native vegetation and studies have found that nitrogen fertilization in sites with elevated nitrogen deposition will enhance grass invasion. (Ex. 300, pp. 4.2-42 – 4.2-43.)

Nitrogen deposition of 5 kg/ha/yr was used by Staff and the Applicant as a benchmark for analyzing nitrogen deposition impacts to plant communities.[1] The Applicant also used this benchmark as the significance threshold in its nitrogen deposition impact analysis. Staff's analysis of project impacts on these species establishes that emissions from the proposed project would deposit an average of approximately 0.083 kilogram per hectare per year (kg/ha/yr) of nitrogen at the Antioch Dunes NWR.

Thus, Staff concluded that because the NWR is already experiencing habitat degradation caused by nitrogen deposition, additional OGS emissions would result in a significant impact to an already stressed ecosystem. However, emissions from the proposed OGS Project would not be the only source of nitrogen deposition at Antioch Dunes NWR. There are existing industrial stationary sources as well as mobile sources (i.e., transportation) in the San Francisco Bay area that collectively contribute to elevated local and regional nitrogen deposition. (Ex. 300, pp. 4.3-43 - 4.2-46, 4.2-52.)

Under Staff-proposed Condition of Certification **BIO-20**, the project owner would be required to mitigate the impacts through annual mitigation payments matching its less than one percent contribution to the overall impacts. Staff developed an equation to calculate the project's proportionate annual mitigation fee payment,

[1] In the area encompassing the Antioch Dunes NWR, the baseline nitrogen deposition rate is estimated to be approximately 6.39 kg/ha/yr. Although this estimate was produced using 2002 data, it is believed to be the most comprehensive and accurate data set available. (Ex. 300, p. 4.2-44.)

which amounts to approximately $5,000.78 per year. Staff recommends that each subsequent annual payment be annually adjusted for inflation. (Ex. 300, p. 45.) The Applicant accepts this condition.

Intervenor Sarvey submits through the testimony of Dr. Stuart Weiss (Weiss) that the **BIO-20** mitigation is insufficient. Weiss asserts that monetary mitigation is inadequate. (Ex. 402.) Weiss proposes that mitigation undertaken by OGS should be a series of specific projects, including captive breeding, buckwheat and other endangered plant propagation, and weed control. According to Weiss, implementation such projects ensures that "real actions are accountable." (*Id*.)

The evidence establishes, however, that the proportionate payments made under **BIO-20** are to be used by the California Wildlife Foundation or other approved entity to directly implement management activities to address impacts to the Antioch Dunes NWR species. The contemplated activities – which are similar to the projects proposed by Weiss include *but are not limited to* captive breeding and release of Lange's metalmark butterfly; propagation and transplantation of naked-stem buckwheat, Contra Costa wallflower, and Antioch Dunes evening primrose; and noxious weed eradication.

To ensure that mitigation occurs as expected, we have modified Staff-proposed Condition of Certification **BIO-20** to require the project owner to obtain an annual report from the California Wildlife Foundation (or other approved entity) documenting how each annual payment was used. The project owner must submit the report to the Energy Commission's compliance staff. This reporting requirement allows the Energy Commission to monitor implementation of **BIO-20**. Thus, the evidence establishes that **BIO-20** addresses Weiss's stated accountability concerns.

Weiss also expressed concern that that the mitigation payment specified by **BIO-20** is too low. We are persuaded that the Applicant and Staff adequately evaluated the project's impacts against acceptable significance criteria to determine that OGS's contribution to cumulative impacts would be minimal. The payment amount is consistent with this determination.

We are further persuaded by the Applicant's and Staff's evidence that implementation of the management activities funded by annual payment toward the operating budget of Antioch Dunes NWR (as described in Staff–proposed Condition of Certification **BIO-20**) would mitigate adverse impacts to Antioch

Dunes NWR and the Antioch Dunes evening primrose, Contra Costa wallflower, and Lange's metalmark butterfly from noxious weed proliferation exacerbated by OGS's contribution to nitrogen deposition. Impacts would be less than significant with the proposed mitigation.

We note that the Applicant, Staff, and Intervenor Sarvey submitted post-hearing briefs addressing these issues. The briefs use argument to underscore existing testimony and evidence in the record and and offered no new perspectives. As discussed above, we evaluated the evidence of record in making our determinations.

9. Deferred Improvement Agreement for Bridgehead Road Widening

According to the evidence, the City of Oakley requires the OGS Project to provide a right-of-way dedication and frontage improvements to Bridgehead Road west of and adjacent to the project site. The improvements are not currently scheduled but when they take place, they will be evaluated by the City for local LORS compliance and environmental impacts. Despite that, the evidence indicates that the frontage area subject to future improvements by OGS was surveyed for the biological resources analysis. No special-status plants or wildlife were detected in this area. The evidence also shows although that Bridgehead Road is located directly west of the Wetland E Conservation Area, will not conflict with or encroach upon the conservation easement or wetland.

Staff suggests that implementation of standard impact avoidance and minimization measures and best management practices for the roadway improvements would minimize impacts to biological resources to less than significant levels. These measures would likely include preconstruction nesting bird surveys, onsite biological monitoring, equipment fueling, maintenance and staging controls, minimal ground disturbance and revegetation, establishment of environmentally sensitive areas, sediment control, Worker Environmental Awareness Training, protected tree avoidance or mitigation, and trash and debris control. (Ex. 300, p. 4.2-46.)

10. Cumulative Impacts

Cumulative impacts refer to a proposed project's incremental effect viewed over time, together with other closely related past, present, and reasonably foreseeable future projects. (Pub. Res. Code § 21083; California Code of

Regulations, Title 14, §§ 15064[h], 15065[c], 15130, and 15355) Cumulative impacts can occur when individually minor but collectively significant projects take place over time.

The cumulative scenario for biological resources includes past, present, and reasonably foreseeable future projects with emissions that contribute to nitrogen deposition at Antioch Dunes NWR. These projects include the following:

- Willow Pass Generating Station (proposed)
- Marsh Landing Generating Station (Energy Commission approved)
- Contra Costa Power Plant (existing)
- Gateway Generating Station (existing)
- Pittsburg Power Plant (existing)
- Delta Energy Center (existing)
- Los Medanos Energy Center (existing)
- Several other existing and proposed industrial stationary sources (e.g., manufacturing facilities), mobile sources, and other nitrogen-emitting activities such as aerial application of fertilizer.

As discussed above under "Indirect and Cumulative Impacts to Species at the Antioch Dunes National Wildlife Refuge," OGS Project would contribute to existing nitrogen deposition impacts at Antioch Dunes NWR. The existing impacts result from several regional sources as listed above. It is this culmination of nitrogen emission sources from similarly small past, present, and reasonably foreseeable future projects that evidently contribute to the current proliferation of noxious weeds at Antioch Dunes NWR.

As required by Condition of Certification **BIO-20**, the project owner will pay mitigating impact fees proportional to the OGS Project's contribution to nitrogen deposition occurring at Antioch Dunes NWR in order to implement management activities targeting weed removal and propagation/transplantation of listed species. With implementation of this condition, the project's incremental contribution to nitrogen deposition at Antioch Dunes NWR and the resultant indirect impacts would be less than cumulatively considerable. (Ex. 300, pp. 4.2-47 – 4.2-48..)

With regard to biological resources generally, the adopted Conditions of Certification would reduce the proposed project's direct impacts to biological

resources to less than significant levels. With implementation of these conditions, the impacts of the OGS Project will be less than cumulatively considerable.

11. Compliance with LORS

The OGS Project is subject to the federal, state, and local LORS identified below in **Biological Resources Table 4**. (Replicated from Ex. 300, pp – 4.2-49 – 4.2-52.) This table also discusses how the OGS would be in compliance with the applicable LORS and the compliance status for direct impacts. We find that the project would comply with all applicable LORS.

Biological Resources - Table 4
Compliance with Federal, State, and Local LORS for Direct Impacts

Applicable Law	In Compliance	Discussion
Federal		
Clean Water Act of 1977 (Title 33, United States Code, sections 1251–1376, and Code of Federal Regulations, part 30, Section 330.5(a)(26))	Yes	Discharge of dredged or fill material into the waters of the United States requires a permit from the U.S. Army Corps of Engineers (USACE). DuPont completed a wetland delineation report in 2008 which included identification of five waters in the project vicinity which was submitted to the USACE for jurisdictional determination. All were determined by USACE to be non-jurisdictional.
Endangered Species Act (Title 16, United States Code, sections 1531 et seq.; Title 50, Code of Federal Regulations, part 17.1 et seq.)	Yes.	Potential take of California Tiger salamander, California red-legged frog, Giant garter snake, and San Joaquin kit fox, requires compliance with the federal Endangered Species Act (ESA). The Applicant is applying for take coverage through the ECCC HCP/NCCP which covers impacts to all of the species covered under the ECCC HCP/NCCP. Permits from USFWS issued to the Conservancy are extended to the Applicant pending approval of the project as a Participating Special Entity. Conditions of Certification **BIO-14, BIO-16, BIO-17,** and **BIO-18** provide measures to avoid and minimize impacts to these species.

Applicable Law	In Compliance	Discussion
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	Yes	Golden eagles may use the site and are protected under the Bald and Golden Eagle Protection Act. The Golden eagle is listed in the ECCC HCP/NCCP as "no take species," and no direct take of individuals is allowed. Participation in the ECCC HCP/NCCP requires implementation of minimization measures and construction monitoring. Permits from USFWS issued to the Conservancy are extended to the Applicant pending approval of the project as a Participating Special Entity. Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance.
Migratory Bird Treaty Act (Title 16, United States Code, sections 703–711)	Yes	Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance.
Migratory Bird Treaty Reform Act (70 F.R. 12710-12716 (March 15, 2005))	Yes	Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance.
State		
California Endangered Species Act (Fish and Game Code, sections 2050 et seq.)	Yes	Construction and operation of the proposed project could result in the "take" of California Tiger salamander, Giant garter snake, Swainson's hawk, and San Joaquin kit fox, listed under CESA. The Applicant is applying take coverage through the ECCC HCP/NCCP which covers impacts to all of the species covered under the ECCC HCP/NCCP. Permits from CDFG issued to the Conservancy are extended to the Applicant pending approval of the project as a Participating Special Entity. Condition of Certification **BIO-11** specifies compensatory mitigation for loss of habitat for these species. Conditions of Certification **BIO-14, BIO-16, BIO-17,** and **BIO-18** provide measures to avoid and minimize impacts to these species.

Applicable Law	In Compliance	Discussion
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Yes	The Applicant is applying take coverage through the ECCC HCP/NCCP which covers impacts to all of the species covered under the ECCC HCP/NCCP. Conditions of Certification **BIO-14, BIO-16, BIO-17,** and **BIO-18** provide measures to avoid and minimize impacts to these species.
California Code of Regulations (Title 20, sections 1702(q) and (v))	Yes	The proposed project is not sited in an area of critical concern for biological resources.
Natural Communities Conservation Planning Act (NCCPA) of 2002 (Fish and Game Code, sections 2800 through 2835)	Yes	The Applicant is applying take coverage through the ECCC HCP/NCCP which covers impacts to all of the species covered under the ECCC HCP/NCCP. The Applicant has submitted a draft PSR to the Conservancy.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Yes	Golden eagles, White-tailed kite, and other bird species that may use the site are California Fully Protected species. Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance.
Native Plant Protection Act (Fish and Game Code, section 1900 et seq.)	Yes	No special-status plants were observed on-site. Special-status plants do not occur, or are not known to historically occur, adjacent to the proposed project.
Nest or Eggs (Fish and Game Code, section 3503)	Yes	Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, Condition of Certification **BIO-7** limits off-site disturbance, and **BIO-5** includes a Worker Environmental Awareness Program (WEAP) to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.
Birds of Prey (Fish and Game Code, section 3503.5)	Yes	Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, Condition of Certification **BIO-7** limits off-site disturbance, and **BIO-5** includes a WEAP to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.5.

Applicable Law	In Compliance	Discussion
Migratory Birds (Fish and Game Code, section 3513)	Yes	Condition of Certification **BIO-9** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance, and **BIO-5** includes a WEAP to educate workers about compliance with environmental regulations, including Fish and Game Code section 3513.
Significant Natural Areas (Fish and Game Code section 1930 et seq.)	Yes	The proposed project is not sited in a significant natural area.
Public Resources Code, sections 25500 and 25527	Yes	The proposed project is not sited in an area of critical concern for biological resources.
Local		
East Contra Costa County Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP)	Yes	The Applicant is applying take coverage through the ECCC HCP/NCCP which covers impacts to all of the species covered under the ECCC HCP/NCCP. Permits from CDFG and USFWS issued to the Conservancy are extended to the Applicant pending approval of the project as a Participating Special Entity. Conditional approval of the Participating Special Entity Agreement is anticipated at the March 2011 Conservancy Governing Board Meeting
City of Oakley General Plan	Yes	Impacts within Oakley are within previously disturbed lands.
City of Oakley Tree Preservation Ordinance	Yes	Condition of Certification **BIO-8** provides for payment of fees to the City of Oakley.
City of Antioch General Plan – Resource Management Element	Yes	Impacts within Antioch are within previously disturbed lands.
City of Antioch Tree Preservation Ordinance	Yes	Condition of Certification **BIO-8** provides for replacement of trees and posting a bond for each protected tree where work will occur within the dripline.

12. Noteworthy Public Benefits

The Applicant, in coordination with California Department of Fish and Game (CDFG), has proposed enhancement measures that have the potential to improve the existing wetland and upland habitats located within the 1.60-acre conservation easement identified as the Wetland E Mitigation Area. (Ex. 300, p. 4.2-53.)

13. Public and Agency Comment.

The U.S. Fish and Wildlife Service submitted written comments during different stages of the AFC process: after submission of the AFC and after publication of the Preliminary Staff Assessment and Final Staff Assessment.

By letters dated October 13, 2010, and February 14, 2011, and also by way of oral comments presented during the March 15, 2011 hearing[2], USFWS essentially expressed concern that the Applicant's and Staff's understate the extent to which nitrogen deposition attributable to the OGS Project could reverse or negate the intensive ongoing conservation efforts to prevent the decline and perhaps extinction of the endangered Lange's metalmark butterfly.

USFWS wants the Energy Commission to ensure that OGS does not jeopardize these species or result in adverse modification or destruction of critical habitat for these two endangered plants. USFWS recommended the OGS be required to implement the following conservation measures: for the operational life of the OGS Project: (1) annual removal of all exotic weeds from a quarter of the Antioch Dunes NWR using cattle or other appropriate grazing animals, hand tools, and appropriate mechanical equipment; (2) annual cultivation of at least 250 individuals of naked-stem buckwheat, 100 individuals of Contra Costa wallflower, and 100 individuals of Antioch Dunes evening primrose (and the planting of these individuals on the Refuge with a success criteria of 50 percent after five years); and (3) captive breeding of Lange's metalmark butterfly and the annual release of at least 200 individuals on the Refuge.

During the March 15, 2011 continued hearing and again in written comments on the PMPD, USFWS reiterated these concerns and questioned the adequacy of the monetary mitigation required by **BIO-20**, as proposed by Staff in the Final

[2] See Ex. 300, pp. 4.2-53 - 4.2-58 and 3/15/11 RT 113-120.

Assessment. USFWS would like OGS to directly undertake these mitigation activities. Notably, the April 28, 2011 letter commenting on the PMPD does not identify any PMPD error or misstatement; rather, it restates USFWS concerns that OGS will result in impacts to the endangered Lange's metalmark butterfly, endangered Contra Costa wallflower, endangered Antioch Dunes evening primrose, and designated critical habitat for the plant species.

In exercising our exclusive jurisdiction over the project and fulfilling our obligations as CEQA lead agency, we find that the Preliminary and Final Staff Assessments adequately address USFWS concerns.[3]

The Preliminary and Final Staff Assessments adequately address USFWS concerns. In those documents Staff explained that OGS would result in a relatively minor (less than one percent) contribution to total nitrogen deposition. Without mitigation, this impact would be cumulatively considerable. With mitigation, the project impacts would not result in take (or jeopardy) of Lange's metalmark butterfly, Contra Costa wallflower, and Antioch Dunes evening primrose. Staff-proposed Condition of Certification **BIO-20** will mitigate cumulative and indirect impacts by directly supporting the ongoing intensive conservation efforts being implemented at Antioch Dunes NWR at a level proportional to the impacts attributable to OGS.

As discussed above under "Indirect and Cumulative Impacts to Species at the Antioch Dunes National Wildlife Refuge," we are persuaded that the Applicant and Staff adequately evaluated the project's impacts against acceptable significance criteria to determine that OGS's contribution to cumulative impacts would be minimal. The payment amount is consistent with this determination.

We are persuaded by the Applicant's and Staff's evidence that implementation of the management activities funded by annual payment toward the operating budget of Antioch Dunes NWR would mitigate adverse impacts to Antioch Dunes NWR and the Antioch Dunes evening primrose, Contra Costa wallflower, and Lange's metalmark butterfly from noxious weed proliferation exacerbated by OGS's contribution to nitrogen deposition. We defer, however, to USFWS to

[3] We note that Intervenor Sarvey's written comments on the PMPD suggest the Preliminary and Supplemental Staff Assessments and the PMPD ignore USFWS concerns. As discussed above in this **Biological Resources** section and shown by evidence and comments in the record, including but not limited to, the **Biological Resources** section of the Supplemental Staff Assessment and discussion during the March 15, 2011 hearing with USFWS representative Chris Nagano, USFWS concerns were directly addressed by Staff and the Committee .

determine whether an incidental take permit is required under federal law. If required, the necessary consultations between the project owner and USFWS could take place outside of the Energy Commission's OGS permitting process.

In a January 11, 2011 letter, the U.S. Army Corps of Engineers (USACE) recommended the the Applicant prepare a wetland delineation report that to ascertain the extent of waters on the project site. The evidence shows that aquatic site mapping was conducted by DuPont in 2006 as part of a wetland delineation study of the entire DuPont property in 2006. The wetland delineation study submitted to the USACE for jurisdictional determination included identification of five waters which were all determined to be non-jurisdictional. By letter dated December 23, 2008, USACE provided a jurisdictional determination for the DuPont Oakley Site that is valid until December 2013. (Ex. 300, p. 4.2-58.)

In a February 10, 2011 letter, the City of Antioch provided information on the two options proposed by the Preliminary Staff Assessment for mitigation for impacts related to the removal of protected trees. The City of Antioch also recommended that to be in compliance with City of Antioch Protected Tree Ordinances the arborist report should identify any established trees that shall have construction conducted within the drip line. Each established tree where construction would occur within the drip line shall be bonded for in the amounts outlined in the City's Municipal Code. (Ex. 300, p. 4.2-58.) Adopted Condition of Certification **BIO-8** (Protected Tree Mitigation Fees) incorporates the information obtained from Antioch.

On April 14, 2011, Staff docketed a letter received from the California Department of Fish and Game (CDFG) pertaining to the Preliminary Staff Assessment and requesting the incorporation of certain modifications into the Final Staff Assessment (FSA). The letter is dated February 11, 2011 but according to email correspondence between Staff and CDFG dated April 14, 2011, it appears that Staff had no prior knowledge of the letter. Although there was no reasonable opportunity for Staff to have addressed the comments in the FSA, we nonetheless assess whether the Final Staff Assessment or PMPD (or both) address CDFG's comments.

CDFG asked that the FSA assert that the take of fully protected species such as the white-tailed kite is prohibited under the California Fish and Game Code and no agency may issue permits, licenses or other approvals that could result in

take of a fully protected species. The FSA, at pages including 4.2-12 and 4.2-36, include language substantially similar to CDFG's proposed language.

Regarding the East Contra Costa Habitat Conservation Plan/Natural Communities Conservation Plan (the Plan), CDFG asked that the FSA make clear that participation in the Plan would only address impacts for species covered under the Plan and would not include the species at the Antioch Dunes National Wildlife Reserve (Antioch NWR). Substantially similar language is included in PMPD **Biological Resources** page 3 and the import of the distinction made by CDFG is further underscored in the FSA and PMPD by the separate analyses pertaining to the Plan and to nitrogen deposition impacts on specified species at the Antioch Dunes NWR.

Also with regard to the Plan, CDFG asked that the FSA specify that both payment of Plan fees and implementation of avoidance and minimization measures are required to fully mitigate impacts. CDFG's comments relate to three topics: discussion relating to fully protected species, OGS participation in the, and nitrogen deposition impacts on Lange's metalmark butterfly, Antioch Dunes evening primrose, and Contra Costa wallflower. The FSA (including at pages 4.2-2, 4.2-59 - 4.2-60) and PMPD (pages 5-6) contain language substantially similar to CDFG's proposed language.

Regarding nitrogen deposition impacts, CDFG first asked that the discussions of project setting better orient readers to the fact that the areas of analysis include off-site habitat beyond the project area, including habitat at the Antioch Dunes NWR. The Biological Resources discussions within the FSA and PMPD make clear that the analysis went beyond the project site and included the Antioch Dunes NWR. CDFG then expressed concern that "the [Preliminary] Staff Assessment does not clearly indicate how the proposed mitigation for nitrogen deposition impacts (Mitigation Measure BIO-19) will address and fully mitigate expected project impacts. The analysis does not describe the management activities that are needed to offset the project's impact; therefore it is unclear whether the proposed financial contribution will be sufficient to address such management needs." As shown by the modifications included in the FSA, which addresses a number of similar concerns raised by USFWS, Staff also adequately addresses this particular CDFG concern.

Notably, CDFG did not opine that Commission staff's proposed mitigation (as presented in the Preliminary Staff Assessment) is inadequate as to the Antioch

Dunes NWR. Instead, CDFG stated that *if* the mitigation is inadequate the resulting impact would be an avoidable residual impact, which is not allowed under the California Endangered Species Act (CESA). As discussed in the FSA (including at pates 4.2-53 - 4.2-54), above in this **Biological Resources** section, and summarized in Findings of Fact #8 and #9 below, we determined that the mitigation is adequate and that the project will not result in a take or jeopardy of the species at the Antioch NWR as those terms are defined by CESA and the Federal Endangered Species Act.

Finally, CDFG contends that the proposed mitigation "does not take into account loss or degradation of habitat on private lands" attributable to nitrogen deposition, which might affect "local species." However, the evidence of record identifies only three species, all of which are located at the Antioch Dunes NWR that might be affected by project-related nitrogen deposition. We are satisfied that the evidence contains a thorough analysis of project related nitrogen deposition impacts.

FINDINGS OF FACT

1. The project site and project study area (including transmission and sanitary sewer line routes, stockpile areas, construction/laydown area, and Wetland E) provide suitable nesting or foraging habitat for several special status and sensitive wildlife species; however, the project site has minimal potential to support sensitive biological resources. No special status or sensitive plant species are likely to occur on the site or within the project area.

2. The project will result in temporary impacts to 16.7 acres of land and permanent impacts to 38.4 acres of land. Implementation of the Conditions of Certification will reduce impacts to general vegetation, special status wildlife, and protected trees to less than significant levels.

3. The project's participation in the East Contra Costa Habitat Conservation Plan and Natural Community Conservation Plan (the Plan) provides take authorization for species covered under the federal Endangered Species Act that would be affected by the project. Payment of the mitigation fees required under the Plan will further ensure mitigation for habitat impacts to species covered under the Plan. Conditions of Certification **BIO-9**, **BIO-11**, **BIO-12**, **BIO-14**, **BIO-16**, **BIO-17**, and **BIO-18** further ensure that the project undertakes additional impact avoidance and minimization measures required under the Plan.

4. The Plan does not cover federally endangered Lange's metalmark butterfly, federally and state endangered Antioch Dunes evening primrose, and federally and state endangered Contra Costa wallflower located at the nearby Antioch Dunes National Wildlife Refuge. Indirect impacts to this area would result from nitrogen deposition caused by the OGS. Condition of Certification **BIO-20** would support ongoing conservation efforts at Antioch Dunes NWR at a level proportional to the impacts attributable to OGS and reduce these indirect and cumulative impacts to less than significant levels.

5. Migratory birds and burrowing mammals have the potential to be directly impacted during project construction and operation. However, there will be no permanent loss of suitable habitat for these species from construction of these linear elements. Potential impacts to these species during construction will be fully mitigated to a less than significant level with the incorporation of Staff's Conditions of Certification.

6. Project construction will not cause loss or fill of any of the identified wetlands.

7. As specified by Condition of Certification **BIO-19**, the Wetland E Mitigation Area will be subject to an Adaptive Management Plan that would require implementation of improvements to the wetlands area and surrounding conservation easement. The measures outlined in **BIO-19** will reduce potential impacts to Wetland E to less than significant levels and improve Wetland E and nearby upland habitats.

8. With implementation of the Applicant's proposed mitigation measures and compliance with the Commission's Conditions of Certification, the cumulative impacts of the OGS Project will be less than cumulatively considerable in respect to special status species, sensitive or rare habitats, or other sensitive biological resources.

9. We do not find that the project will result in a take or jeopardy of the species at the Antioch Dunes NWR; however, this determination must be made by USFWS. If consultation and take authorization is required, the USFWS process can take place independently of the Energy Commission process. As required by Condition of Certification **BIO-23**, if USFWS requires a take permit, the project owner shall notify the Energy Commission's Compliance Program Manager of the permit conditions.

CONCLUSION OF LAW

The project will comply with all applicable laws, ordinances, regulations, and standards (LORS) listed in **Appendix A** of this Decision and referenced under Biological Resources.

CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST SELECTION

BIO-1 The project owner shall assign a Designated Biologist to the project. The project owner shall submit the résumé of the proposed Designated Biologist, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval.

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field; and
2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and
3. At least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the résumé shall demonstrate to the satisfaction of the CPM, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the Conditions of Certification.

Verification: The project owner shall submit the specified information at least 60 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

DESIGNATED BIOLOGIST DUTIES

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities.

The Designated Biologist may be assisted by the approved Biological Monitor(s), (see **BIO-3** below), but remains the contact for the project owner and CPM.

1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources Conditions of Certification;
2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), to be submitted by the project owner;
3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special status species or their habitat;
4. Clearly mark sensitive biological resource areas if present and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e. parking lots) for animals in harm's way;
6. Notify the project owner and the CPM of any non-compliance with any Biological Resources Condition of Certification;
7. Respond directly to inquiries of the CPM regarding biological resource issues;
8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Report; and
9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training and all permits.

Verification: The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources activities. Monthly Compliance Reports will also be submitted to the East Contra Costa County Habitat Conservancy (Conservancy). If actions may affect biological resources during operation, a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the

Annual Compliance Report unless their duties are ceased as approved by the CPM.

BIOLOGICAL MONITOR QUALIFICATIONS

BIO-3 The project owner's CPM-approved Designated Biologist shall submit the résumé, at least three references and contact information, of the proposed Biological Monitors to the CPM for approval. The résumé shall demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification and the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), WEAP, and all state, federal, and local permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) have been trained including the date when training was completed. If additional biological monitors are needed during construction the specified information shall be submitted to the CPM for approval 10 days prior to their first day of monitoring activities.

DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

BIO-4 The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the Biological Resources Conditions of Certification.

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

The Designated Biologist shall:

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

If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

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

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

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-5 The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation, and closure are informed about sensitive biological resources associated with the project.

The WEAP must:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media is made available to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas, if present;
3. Present the reasons for protecting these resources;
4. Present the meaning of various temporary and permanent habitat protection measures as necessary;
5. Discuss penalties for violation of applicable LORS (e.g., federal and state endangered species acts);
6. Identify whom to contact if there are further comments and questions about the material discussed in the program; and
7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM the proposed WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a résumé of the person(s) administering the program. At least 10 days prior to site and related facilities mobilization, the project owner shall submit two copies of the CPM-approved materials. The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for a period of at least six months after the start of commercial operation.

During project operation, signed statements for operational personnel shall be kept on file for six months following the termination of an individual's employment.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN (BRMIMP)

BIO-6 The project owner shall develop a BRMIMP and submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to CDFG, USFWS, and the East Contra Costa County Habitat Conservancy (Conservancy) (for review and comment) if applicable and shall implement the measures identified in the approved BRMIMP.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

1. all biological resource mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. all Applicant-proposed mitigation measures presented in the Application For Certification, data request responses, and workshop responses;
3. all Biological Resource Conditions of Certification identified as necessary to avoid or mitigate impacts;
4. all biological resources mitigation, monitoring, and compliance measures required in the East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan (ECCC HCP/NCCP) terms and conditions, as approved by the East Contra Costa County Habitat Conservancy (Conservancy);
5. all biological resource mitigation, monitoring, and compliance measures required in other state agency terms and conditions, such as those provided in the National Pollution Discharge Elimination System (NPDES) Construction Activities Stormwater General Permit;

6. all biological resource mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements;
7. a list of all sensitive biological resources to be impacted, avoided, or mitigated during project construction, operation, and closure;
8. all required mitigation measures for each sensitive biological resource;
9. a detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;
10. all locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
11. aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities — one set prior to any site (and related facilities) mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
12. duration for each type of monitoring and a description of monitoring methodologies and frequency;
13. performance standards to be used to help decide if/when proposed mitigation is or is not successful;
14. all performance standards and remedial measures to be implemented if performance standards are not met;
15. a preliminary discussion of biological resources-related facility closure measures; and
16. a process for proposing BRMIMP modifications to the CPM and appropriate agencies for review and approval.

Verification: The project owner shall provide the draft BRMIMP to the CPM at least 60 days prior to start of any site (or related facilities) mobilization. The CPM, in consultation with the East Contra Costa County Habitat Conservancy (Conservancy) (and USFWS and CDFG if they choose to comment), will determine the BRMIMP's acceptability. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM within five days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. Ten days prior to site and related facilities mobilization the revised BRMIMP shall be resubmitted to the CPM.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Any changes to the approved BRMIMP must also be approved by the CPM, in consultation with the Conservancy, (and USFWS and CDFG if they choose to comment), to ensure no conflicts exist.

Implementation of BRMIMP measures will be reported in the Monthly Compliance Reports by the Designated Biologist (i.e., survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval a written construction completion report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases, and which mitigation and monitoring items are still outstanding. Additional copies shall be provided to the East Contra Costa County Habitat Conservancy, CDFG, and USFWS.

GENERAL IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-7 The project owner shall implement the following measures during construction and operation to manage their project site and related facilities in a manner to avoid or minimize impacts to the local biological resources:

1. Limit Disturbance Area. Clearly demarcate construction exclusion zones around biologically sensitive areas, including but not limited to, East Antioch Creek and other aquatic resources (Wetland E, Wetland D, and Wetland F), the row of *Eucalyptus* trees (excluding the 25 feet of trees to be removed) and the group of trees growing in the ruderal grassland near the laydown area, and any other sensitive biological resources identified during pre-construction surveys. Vehicles and personnel shall be prohibited from entering sensitive habitats. Protection would include wildlife exclusion fencing and/or silt fencing, signs, and sediment control measures installed prior to pre-construction site mobilization. Best Management Practices will be implemented during all phases of the project. Transmission Line Best Management Practices will be implemented to prevent topsoil from leaving the construction area.

2. Minimize Impacts of Transmission Lines. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the *Avian Power Line Interaction Committee (APLIC), Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) to reduce the likelihood of electrocutions of large birds. Bird flight diverters shall also be installed along portions of the transmission line within bird

migration routes to reduce the likelihood of avian collisions with the transmission line. Bird flight diverters such as the Swan-Flight Diverter (Tyco Electronics) shall be installed on the transmission line in the vicinity of the Wetland E Conservation Easement Area and East Antioch Creek.

3. Avoid Use of Toxic Substances. Road surfacing and sealants as well as soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.

4. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards the project boundaries. Lighting shall be shielded, directional, and at the lowest intensity required for safety.

5. Avoid Wildlife Pitfalls. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access. Should wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the individual to a safe location. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.

6. Avoid Entrapment of Wildlife. Any construction pipe, culvert, or similar structure with a diameter greater than three inches, stored less than eight inches above ground for one or more days/nights, shall be inspected for wildlife before the material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored, or placed on pipe racks.

7. Report Wildlife Injury and Mortality. Report all inadvertent deaths of special-status species to the appropriate project representative, including road kill. Species name, physical characteristics of the animal (sex, age class, length, weight), and other pertinent information shall be noted and reported in the Monthly Compliance Reports. Injured animals shall be reported to CDFG or USFWS and the CPM and the project owner shall follow instructions that are provided by CDFG or USFWS.

8. Avoid Use of Exotic Pest Plants. Eliminate from landscaping plans any California exotic pest plants of concern as defined by the California Department of Food and Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC).

9. Worker Guidelines. During construction all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. Workers shall not feed wildlife or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.

10. Minimize Impacts to Trees. During construction, measures will be implemented to minimize impacts to existing trees to remain on the OGS Project site. This includes installation of silt fencing and/or wildlife exclusion fencing to reduce the likelihood of impacts to trees.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Photographic verification of all bird flight diverters installed will be provided upon installation and provided in the Monthly Compliance Report. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed. Additional copies shall be provided to the East Contra Costa County Habitat Conservancy, CDFG, and USFWS.

PROTECTED TREES MITIGATION FEES

BIO-8 To comply with various protected tree ordinances, the project owner shall mitigate for loss of protected trees based on the results of the project owner's arborist report. Mitigation shall include either mitigation fees and/or the purchase of replacement trees. A tree permit shall be obtained from the City of Oakley Community Development Department and one of the following mitigation options is required: three new trees of the same species shall be planted for each protected tree removed; or the total appraisal fee for the protected trees scheduled to be removed shall be paid to the Community Development Department or a combination of replacement tree plantings and in lieu fee payments shall be made. Mitigation will be assessed by the CPM in coordination with City of Oakley based on review of the arborist report.

A tree permit shall be obtained from the City of Antioch. Protected trees within the City of Antioch that legally would be removed would be replaced by boxed specimens at a rate of two 24-inch box trees for each established tree and two 48-inch box trees for each mature tree. In lieu of boxed specimens, penalties would be assessed by the City of Antioch based on the size of the tree to be removed. Mitigation will be assessed by the CPM in coordination with City of Antioch based on review of the arborist report.

The project owner will submit an arborist report to the CPM for review and approval in consultation with the City of Antioch which identifies all

protected trees that will remain in place but will have construction within the dripline. A bond will be required for each protected tree at which grading will occur within the drip line within the City of Antioch. If no protected trees would have construction within the dripline the project owner will submit written verification to the CPM and the City of Antioch stating that no construction activities will occur within the dripline of protected trees and no bond is required.

Verification: At least 30 days prior to the start of any tree removal, the project owner shall provide to the CPM for review and approval, and to the City of Oakley and City of Antioch for review and comment, the arborist report which identifies all trees to be removed within the City of Oakley and City of Antioch and all protected trees to remain in place at which grading will occur within the drip line within the City of Antioch. A copy of the receipt of payment and/or verification of tree replacement to the City of Oakley, verifying that the protected tree mitigation fees have been paid, according to the conditions specified above, shall be provided to the CPM prior to tree removal.

A copy of the verification of 2:1 protected tree replacement or the receipt of payment of penalty fees to the City of Antioch, according to the conditions specified above, shall be provided to the CPM prior to tree removal. Prior to tree removal a copy of the receipt of payment of bond will be submitted by the project owner upon posting a bond to the City of Antioch for any protected trees that would have construction or grading within the dripline or written verification that no protected trees are located where construction or grading activities would occur.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE AND MINIMIZATION MEASURES FOR BREEDING BIRDS

BIO-9 Pre-construction nest surveys shall be conducted if construction activities including tree removal will occur from February 1 through September 15. At all times of the year, noise generating activities (above 60 dBA) shall be avoided during dawn and dusk to avoid impacts to birds protected under the Migratory Bird Treaty Act. The Designated Biologist or Biological Monitor shall perform surveys in accordance with the following guidelines:

1. Surveys shall cover all potential nesting habitat in the project site and within 150 feet of the boundaries of the plant site as well as the sanitary sewer force main route and transmission line right-of-way. Surveys specifically for nesting Swainson's hawk shall be conducted within 1,000 feet of designated disturbance areas that contain appropriate nesting habitat. Surveys specifically for nesting Golden eagle shall be conducted within one-half mile of designated disturbance areas that contain appropriate nesting habitat. If a potential Swainson's hawk nests is located within 1,000 feet of the

project site, occupancy may be determined by observation from public roads or by observations of Swainson's hawk activity (e.g. foraging) near the project site.

2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. Pre-construction surveys shall be conducted no more than 30 days prior to initiation of construction activity. One survey needs to be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks in any given area, an interval during which birds may establish a nesting territory and initiate egg laying and incubation.
3. If active nests are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with the CPM (in coordination with CDFG, and USFWS) and monitoring plan shall be developed; Consultation with the CPM in coordination with CDFG shall be required for any construction that occurs within 1,000 feet of a Swainson's hawk nest or one-half mile of an active Golden eagle nest to ensure that no take of Swainson's hawk or Golden eagle occurs during project construction. Nest locations shall be mapped using GPS technology and submitted, along with a weekly report stating the survey results, to the CPM.
4. If Swainson's hawk young fledge prior to September 15, construction activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project Applicant can apply to the Conservancy for a waiver of the no-disturbance buffer zone requirements. The waiver must also be approved by the CDFG and USFWS and the CPM must be notified of any request for a waiver.
5. The Designated Biologist shall monitor the nest until he or she determines that nestlings have fledged and dispersed. Activities that might, in the opinion of the Designated Biologist, disturb nesting activities (e.g., excessive noise above 60 dBA, especially during steam blowing), shall be prohibited within the buffer zone until such a determination is made.

Verification: Prior to the start of any pre-construction site mobilization, the project owner shall provide the CPM and the East Contra Costa County Habitat Conservancy (Conservancy) a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed.

If active nests are detected during the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest, and a monitoring plan shall be submitted to the Conservancy for review and comment and the CPM for approval. Additional copies shall be provided to the CDFG and USFWS. Approval of the plan is required before construction may commence. All impact avoidance and minimization measures related to nesting birds shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist.

IMPACT AVOIDANCE AND MINIMIZATION MEASURES FOR BATS

BIO-10 The project owner shall conduct a survey for roosting bats within 200 feet of project activities within 30 days prior to any pre-construction site mobilization, including tree removal. All trees and snags proposed for removal, topping, or pruning shall be marked in the field. A qualified bat biologist shall conduct a roost assessment of all the marked trees. The biologist shall be approved by the CPM. If no suitable roosting habitat is present, no further action is required.

If suitable roosting habitat is present, the project owner shall also conduct surveys for roosting bats during the maternity season (March 1 to August 31) within 200 feet of project activities. Trees and other appropriate structures shall be surveyed by a qualified bat biologist. Surveys shall include a minimum of one day and one evening survey. The biologist shall be approved by the CPM. If active maternity roosts or hibernacula are found, the trees occupied by the roost shall be avoided (i.e., not removed) by the project, if feasible. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CPM-approved methods, developed in consultation with CDFG) for nearby alternative maternity colony sites. If the bat biologist determines, in consultation with the CPM and CDFG and with the approval of the CPM, that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required and tree removal may occur.

However, if there are no alternative roosts sites used by the maternity colony, provision of substitute roosting bat habitat would be required. This measure would not apply to Western red bat as they are solitary and primarily use trees as roosts. If Western red bats are present during the breeding season, tree removal would not occur during the breeding season and Item 3 below would be implemented. If active maternity roosts are absent, but a hibernaculum (i.e., a non-maternity roost) is present, then exclusion of bats prior to tree removal is required.

1. Provision of substitute roosting bat habitat. If a maternity roost will be impacted by the project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the project site no less than three months prior to the eviction of the colony. Alternative roost sites will be designed and constructed in accordance with the specific bats' requirements and in coordination with CDFG and the CPM. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFG shall also be notified of any hibernacula or active nurseries within the construction zone.

2. Exclude bats prior to removal of trees with roosts. If non-breeding bat hibernacula are found in the trees to be removed within the construction footprint, the individuals shall be safely evicted, under the direction of the qualified bat biologist, by partial dismantling of roost sites (e.g. removal of tree limbs) to induce abandonment by bats, or other appropriate measures. Additionally, on the day of tree removal the tree cutters will inspect the trees prior to them felling the trees for bats in areas that the Designated Biologist is not able to observe from the ground.

   If an active maternity roost is located in an area to be impacted by the project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to March 1) or after young are flying (i.e., after August 31) using the exclusion techniques described above.

3. Western red bat specific measures. If an active Western bat maternity roost is found in the trees to be removed, tree removal will not occur during the breeding season to avoid disturbing females with non-volant (incapable of flying) young (March 1 through August 31). The leaf litter associated with the tree(s) will be removed during the warm season to prevent Western red bats from roosting under the leaf litter during the winter when tree removal will occur. Prior to tree removal, outside of the breeding period, on the day immediately preceding tree removal, any tree to be removed will first be disturbed at the end of the day (after 5:00 pm) by removing the lowest branches that do not have dense clusters of leaves. Trees should be removed the day after the initial disturbance as bats disturbed under these circumstances are not likely to return to the same tree for day roosting the next day. Additionally, on the day of tree removal the tree cutters will inspect the trees prior to them felling the trees for bats in areas that the Designated Biologist is not able to observe from the ground.

4. Bat maternity roosts in trees to remain on site. The Designated Biologist shall monitor the maternity roost until it is determined that young are volant (are capable of flying); activities that might, in the opinion of the Designated Biologist, disturb roosting activities (e.g., excessive noise above 60 dBA, especially during steam blowing), shall be prohibited within the buffer zone until such a determination is made.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. The résumé of the proposed bat biologist will be submitted to the CPM for approval at least 45 days prior to the start of any bat surveys. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. A written report summarizing the results of the pre-construction survey shall be sent to the CPM and CDFG no less than 15 days prior to the start of pre-construction site mobilization which will include documentation of any active roost trees to be removed. The report shall describe survey methods, including the time, date, and duration of the survey, identity and qualifications of the surveyor(s), and a list of species observed, a figure showing roost locations observed, and proposed mitigation and exclusion measures. Mitigation and exclusion measures must be developed in coordination with the CPM and CDFG, and approved by the CPM prior to initiation of the measures or project activities that would disturb the roost site. Within 10 days of removal of trees with roost sites, the project owner shall submit a report describing the results of the exclusion, mitigation measures, and tree removal.

SWAINSON'S HAWK NEST TREE MITIGATION AND MONITORING

BIO-11 If pre-construction surveys locate Swainson's hawk nests in trees which are to be removed, the project owner shall implement the following measures to minimize impacts to known Swainson's hawk nests. Tree removal will not occur while the Swainson's hawk nests are active.

1. All active Swainson's hawk nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to project activities will be mitigated by the project owner according to the requirements of the ECCC HCP/NCCP including the following:

   a. Loss of nest non-riparian nest trees will be mitigated by the project owner by, if feasible on-site, planting of 15 saplings for every tree lost with the objective of having at least five mature trees established for every tree lost according to the requirements listed below, AND

   b. Either pay the Conservancy an additional fee to purchase, plant, maintain, and monitor 15 saplings on the HCP/NCCP Preserve

System for every tree lost according to the requirements listed below; OR

c. The project owner will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Conservancy (e.g., within an HCP/NCCP Preserve or existing open space linked to HCP/NCCP preserves).

2. The project owner shall meet all ECCC HCP/NCCP requirements for all planting options which include the following:

   a. Tree survival shall be monitored at least annually for five years, then every other year until year 12. All trees lost during the first five years will be replaced. Success will be reached at the end of 12 years if at least five trees per tree lost survive without supplemental irrigation or protection from herbivory. Trees must also survive for at least three years without irrigation.

   b. Native trees suitable for this site should be planted. When site conditions permit, a variety of native trees will be planted for each tree lost to provide trees with different growth rates, maturation, and life span, and to provide a variety of tree canopy structures for Swainson's hawk.

   c. Whenever feasible and when site conditions permit, trees should be planted in clumps together or with existing trees to provide larger areas of suitable nesting habitat and to create a natural buffer between nest trees and adjacent development (if plantings occur on the development site).

   d. Trees planted in the HCP/NCCP preserves or other approved offsite location will occur within the known range of Swainson's hawk in the inventory area and as close as possible to high quality foraging habitat.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. If trees with known nests are to be removed while nests are not active, a written report summarizing the results of the pre-construction survey shall be sent to the CPM, the East Contra Costa County Habitat Conservancy (Conservancy), CDFG, and USFWS no less than 15 days prior to the start of ground disturbance which will include documentation of any known nest trees to be removed. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed. Additional copies shall be provided to the Conservancy, CDFG, and USFWS. The report will include written verification that any compensation fees for of loss of nest trees have been paid to

the Conservancy. Annual Reports will be submitted to the CPM and the Conservancy that document compliance with the ECCC HCP/NCCP requirements for planting and the success of any plantings. Additional copies shall be provided to CDFG and USFWS.

WESTERN BURROWING OWL IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-12 The project owner shall implement the following measures to manage their construction site, and related facilities, in a manner to avoid or minimize impacts to breeding and foraging burrowing owls.

1. The Designated Biologist or Biological Monitors or other agent approved by the CPM, in consultation with the East Contra Costa County Habitat Conservancy (Conservancy), CDFG, and USFWS, shall perform a pre-construction survey of suitable habitat at the project site and a 150-meter (approximately 500-foot) buffer from the perimeter of the proposed footprint (where possible and appropriate based on habitat) within 30 days prior to construction to identify burrowing owls and burrows. Surveys should take place near sunrise or sunset in accordance with CDFG survey guidelines (CBOC 1993). Breeding season surveys (February 1 to August 31) will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. Non-breeding surveys (September 1 to January 31) will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. All potential burrows or burrowing owls will be mapped. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site will be resurveyed. Survey results will only be valid for the season (breeding or non-breeding) during which the survey is conducted.

If burrowing owls are found onsite, the following shall be implemented:

1. During the breeding season (February 1 through August 31), all nest sites that could be disturbed by project construction shall be avoided during the remainder of the breeding season or while the nest is occupied by adults or young as determined by the Designated Biologist.
2. During the breeding season (February 1 through August 31), occupied burrows in designated construction areas or within 250 feet of designated construction areas shall not be disturbed unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

3. During the non-breeding season (September 1 to January 31), occupied burrows in designated construction areas or within 160 feet of designated construction areas shall not be disturbed, if possible.

4. If occupied burrows for burrowing owls are not avoided during the non-breeding season, owls should be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for one week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (CDFG 1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

Verification: All avoidance and minimization measures related to burrowing owl shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. The project owner shall submit a report to the CPM, the East Contra Costa County Habitat Conservancy (Conservancy), CDFG, and USFWS at least 10 days prior to pre-construction site mobilization that describes when surveys were completed, observations, and mitigation measures to be implemented. Within 30 days after completion of owl passive relocation and monitoring, and the start of construction-related ground disturbance, the project owner shall provide written verification to the CPM, the Conservancy, USFWS, and CDFG that burrowing owl mitigation measures have been completed.

AMERICAN BADGER IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-13 To avoid direct impacts to American badgers, pre-construction surveys shall be conducted concurrent with the San Joaquin kit fox and burrowing owl pre-construction surveys. Surveys shall be conducted as described below:

1. The Designated Biologist or Biological Monitors shall perform pre-construction surveys for badger dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. If dens are detected each den shall be classified as inactive, potentially active, or definitely active. Den avoidance, monitoring, and destruction methods shall adhere to those impact avoidance and minimization measures prescribed for San Joaquin kit fox (see Condition of Certification **BIO-14**).

Verification: All avoidance and minimization measures related to American badger shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the

Designated Biologist. The project owner shall submit a report to the CPM and CDFG at least 10 days prior to the start of any pre-construction site mobilization that describes when badger surveys were completed, observations, and mitigation measures to be implemented. Within 30 days after completion of construction the project owner shall provide to the CPM a written construction termination report identifying how impact minimization measures have been completed. Additional copies shall be provided to the Conservancy, CDFG, and USFWS.

SAN JOAQUIN KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-14 The following measures, developed in cooperation with East Contra Costa County Habitat Conservancy (Conservancy), shall be implemented to avoid and minimize impacts to San Joaquin kit fox.

1. The Designated Biologist or Biological Monitors or other agent approved by the CPM, in consultation with CDFG and USFWS, shall perform pre-construction surveys in the project area, in all areas identified in the Conservancy's Planning Survey Report as having suitable breeding or denning habitat, including areas within 250- foot-radius of all project facilities, utility corridors, and access roads within 30 days prior to pre-construction site mobilization to identify San Joaquin kit fox dens. Adjacent parcels under different land ownership shall not be surveyed. Surveys will be conducted in accordance with USFWS survey guidelines (USFWS 1999).

If San Joaquin kit fox and/or suitable dens are found onsite, the following shall be implemented:

Exclusion Zones

If dens are identified in the survey area outside of the proposed disturbance footprint exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed, the CPM, the Conservancy, USFWS, and CDFG must be contacted:

- Potential den: 50 feet
- Known den: 100 feet
- Natal/pupping den (occupied and unoccupied): the CPM, the Conservancy, USFWS, and CDFG must be contacted

<u>Known den:</u> To ensure protection, the exclusion zone should be demarcated by fencing or stakes and flagging that encircles each den at least 100 feet from den entrance and does not prevent access to the

den by kit foxes. Exclusion zones shall be demarcated with stakes and flagging and should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing or stakes and flagging shall be removed to avoid attracting subsequent attention to the dens.

Potential den: Placement of 4-5 flagged stakes at least 50 feet from the den entrance(s).

Construction and other project activities should be prohibited within these exclusion zones.

Destruction of Dens

Disturbance to all San Joaquin kit fox dens should be avoided to the maximum extent possible. Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed.

Potential, Known, and/or Occupied kit fox dens shall not be destroyed unless the Applicant has take authorization from the USFWS which would be provided through participation in the ECCC HCP/NCCP.

Potential, Known, and/or Occupied Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If a natal or pupping den is detected in the survey area, the CPM, USFWS, and CDFG shall be notified immediately. The den shall not be excavated until the pups and adults have vacated and then only after further consultation with CPM, in coordination with the Conservancy, USFWS and CDFG.

If kit fox activity is observed at the den during this initial monitoring period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity.

For dens other than natal or pupping dens, use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. Energy Commission staff, USFWS, and CDFG encourage hand excavation, but realize that soil conditions may

necessitate the use of excavating equipment. However, extreme caution must be exercised.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist the animal has escaped from the partially destroyed den.

If any den was considered unoccupied, but upon commencement of den destruction determined to be occupied, then destruction shall cease and the CPM, USFWS, and CDFG shall be notified immediately.

Verification: All avoidance and minimization measures related to San Joaquin kit fox shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. The pre-construction survey shall be conducted no more than 30 days prior to the initiation of pre-construction site mobilization on the OGS Project site or sanitary sewer line and transmission line corridors. A written report summarizing the results of the pre-construction survey shall be sent to the CPM, the East Contra Costa County Habitat Conservancy (Conservancy), CDFG, and USFWS within five working days of survey completion and prior to the start of ground disturbance. Within 30 days after completion of construction the project owner shall provide to the CPM a written construction termination report identifying how impact minimization measures have been completed. Additional copies shall be provided to the Conservancy, CDFG, and USFWS.

WESTERN POND TURTLE IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-15 The following measures shall be implemented to avoid and minimize impacts to western pond turtle.

1. Pre-construction surveys shall be conducted concurrent with the Giant garter snake pre-construction surveys. Surveys shall be conducted as described below in Condition of Certification **BIO-16**.
2. Wildlife exclusion fencing will be installed to protect the riparian habitat along East Antioch Creek in the vicinity of the intersection of the transmission line right-of-way as described under Giant garter snake avoidance and minimization measures (see **BIO-16**).

Verification: All avoidance and minimization measures related to Western pond turtle shall be included in the BRMIMP and implemented. Implementation of

the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. The project owner shall submit a report to the CPM and CDFG at least 10 days prior to the start of any pre-construction site mobilization that describes when Western pond turtle surveys were completed, observations, and mitigation measures to be implemented. Within 30 days after completion of construction the project owner shall provide to the CPM a written construction termination report identifying how impact minimization measures have been completed. Additional copies shall be provided to the East Contra Costa County Habitat Conservancy and CDFG.

GIANT GARTER SNAKE IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-16 The following measures, developed in cooperation with East Contra Costa County Habitat Conservancy (Conservancy) shall be implemented to avoid and minimize impacts to Giant garter snake (GGS).

1. The Designated Biologist or a representative approved by USFWS and the CPM shall perform pre-construction surveys in areas identified in the Conservancy's Planning Survey Report as having suitable GGS habitat and 200 feet of adjacent upland as measured from the outer edge of each bank. Surveys will document the extent of suitable habitat in the project area, including all project facilities, utility corridors, and access roads, and document any sighting of GGS.
2. Construction within 200 feet of aquatic features (East Antioch Creek) or within suitable GGS habitat must follow USFWS construction guidelines. The project Applicant shall minimize all construction within 200 feet of aquatic features with suitable GGS habitat to the greatest extent possible. All construction that must occur within 200 feet of aquatic features with potential GGS habitat shall occur within the GGS active period (May 1-October 1).
3. Wildlife exclusion fencing will be installed to protect the riparian habitat along East Antioch Creek in the vicinity of the intersection of the transmission line right-of-way.
4. USFWS shall approve in writing any construction work within GGS habitat that must be conducted outside of this time window (October 1 and April 30).

Verification: All Giant garter snake (GGS) impact avoidance and minimization measures shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. The Designated Biologist or a representative approved by the CPM, in consultation with the East Contra Costa County Habitat Conservancy (Conservancy), CDFG, and USFWS, must survey

the construction area within potential GGS habitat no more than 24 hours prior to the initiation of pre-construction site mobilization in the vicinity the GGS habitat along East Antioch Creek. Another pre-construction survey must be conducted if construction activity ceases for a period of more than two weeks. The project owner shall submit a report to the Conservancy, USFWS, CDFG, and the CPM documenting results of pre-construction surveys within 24 hours of commencement of construction activities. The project owner shall submit a report to the Conservancy, USFWS, CDFG, and the CPM if any GGS are found within work areas no more than 24 hours after the sighting is made. Within 30 days after completion of construction the project owner shall provide to the CPM a written construction termination report identifying how impact minimization measures have been completed. Additional copies shall be provided to the Conservancy, CDFG, and USFWS.

CALIFORNIA TIGER SALAMANDER IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-17 The following measures, developed in cooperation with East Contra Costa County Habitat Conservancy (Conservancy) shall be implemented to avoid and minimize impacts to California tiger salamander.

1. Wildlife exclusion fencing and silt fencing shall be installed to protect Wetland D, Wetland E, and Wetland F. “Sensitive Resource Area” signage shall also be installed at each wetland prior to pre-construction site mobilization.

Verification: All avoidance and minimization measures related to California Tiger salamander shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of construction the project owner shall provide to the CPM a written construction termination report identifying how impact minimization measures have been completed. Additional copies shall be provided to the Conservancy, CDFG, and USFWS.

CALIFORNIA RED-LEGGED FROG IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-18 The following measures, developed in cooperation with East Contra Costa County Habitat Conservancy (Conservancy) shall be implemented to avoid and minimize impacts to California red-legged frog.

1. Wildlife exclusion fencing will be installed to protect the riparian habitat along East Antioch Creek in the vicinity of the intersection of the transmission line right-of-way as described under Giant garter

snake avoidance and minimization measures prior to pre-construction site mobilization.

Verification: All avoidance and minimization measures related to California red-legged frog shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of construction the project owner shall provide to the CPM a written construction termination report identifying how impact minimization measures have been completed. Additional copies shall be provided to the Conservancy, CDFG, and USFWS.

WETLAND E MONITORING AND ADAPTIVE MANAGEMENT PLAN

BIO-19 The project owner shall develop and implement a Wetland E Monitoring and Adaptive Management Plan (Plan). The plan must include monitoring methods, planting design, responsible parties, long-term management and maintenance requirements, contingency plan, and details on the funding source. The plan must be developed by the project owner in coordination with the CPM and CDFG, consistent with the stated purposes of the 1997 conservation easement on the property. The Plan will include all proposed habitat improvements and enhancement goals, objectives and performance standards developed by the Applicant in coordination with CDFG (CH2MHILL 2010k). Detailed baseline maps which show the current species composition or cover of wetland vegetation as well as current extent of noxious weed cover as determined by standard vegetation sampling methods will be included in the Plan. Sampling methods would also be fully described in the Plan.

For the CPM to deem the enhancements successful:

1. The site will have 75 percent survivorship of planted coast live oak by year five.
2. Surviving trees shall show leader growth for two out of the last three years of monitoring.
3. The site will have 75 percent survivorship of planted upland dune shrubs by year five.
4. The native upland herbaceous species shall be established without reseeding for two out of the last three years of monitoring.
5. The site will not require watering or maintenance other than weed control after year three.
6. The site shall not contain more than five percent invasive exotics (Cal-IPC rating High) after five years.

The project owner shall maintain wildlife habitat value and wildlife use of Wetland E. Any adverse impacts to wetland habitat caused by changes in the duration and extent of ponding or water quality will be addressed by *contingency plans* to be included in the Wetland E Monitoring and Adaptive Management Plan (see **SOIL&WATER-6** for details). Any significant change in species composition or cover of wetland vegetation compared to pre-project conditions (based upon standard vegetation sampling techniques) shall maintain Wetland E as wetland habitat. Annual monitoring reports will be submitted for years 1, 2, 3, 4, and 5, with the first year beginning one year after the habitat improvements are implemented. If habitat improvements are not deemed successful after five years, the project owner will proposed adaptive management measures developed in coordination with the CPM and CDFG to meet required goals, objectives, and performance standards. Annual monitoring reports shall be submitted to the CPM for review and approval for the life of the project.

Verification: At least 60 days prior to the start of any construction-related ground disturbance the project owner shall submit a Draft Wetland E Monitoring and Adaptive Management Plan to the CPM for review and approval, and the California Department of Fish and Game (CDFG), and the CV RWQCB for review and comment. The CPM in consultation with CDFG and the CV RWQCB, will determine the plan's acceptability. At least 15 days prior to the start of any construction-related ground disturbance, the project owner shall provide the CPM with the final version of the Wetland E Monitoring and Adaptive Management Plan that has been reviewed and approved by the CPM.

Habitat improvements shall be initiated no later than 12 months from the start of construction. Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval a report identifying which items of the Wetland E Monitoring and Adaptive Management Plan have been completed.

The project owner shall submit annual reports to the CPM, CDFG, and the CV RWQCB describing planting, monitoring, and maintenance activities implemented as well as documentation of compliance with all goals, objectives and performance standards in the Wetland E Monitoring and Adaptive Management Plan. The reports shall fully describe the status of the habitat improvement at the Wetland E conservation area, and shall describe any adaptive management methods implemented. Annual monitoring reports will be submitted to the CPM for review and approval and to CDFG for review and comment for years 1, 2, 3, 4, and 5, with the first year beginning one year after the habitat improvements are implemented. The annual report for years 1, 2, 3, 4, and 5 shall be submitted within 30 days after the anniversary date of the commencement of habitat improvements. If after five years, habitat improvements are not deemed successful, the project owner will develop adaptive management measures in coordination with CPM and CDFG to meet

required goals, objectives, and performance standards. The project owner shall submit an addendum to the CPM for review and approval and to CDFG and CV RWQCB for review and comment prior to implementing adaptive management measures. Annual monitoring reports shall be submitted to the CPM for review and approval and to the CDFG and CV RWQCB for review and comment annually within 30 days of the anniversary date of the commencement of habitat improvements for the life of the project.

ANTIOCH DUNES NATIONAL WILDLIFE REFUGE FUNDING

BIO-20 The project owner shall provide an annual payment to California Wildlife Foundation or other third-party approved by USFWS to assist in noxious weed management and its effects at the Antioch Dunes National Wildlife Refuge. Management activities funded may include but are not limited to: captive breeding and release of Lange's metalmark butterfly; propagation and transplantation of naked-stem buckwheat, Contra Costa wallflower, and Antioch Dunes evening primrose; noxious weed eradication using grazing animals, hand tools, and/or appropriate mechanical equipment. The first annual payment shall be no less than $5,000.78.

Each subsequent annual payment shall be adjusted for inflation in accordance with the Employment Cost Index – West or its successor, as reported by the U.S. Department of Labor's Bureau of Labor Statistics. Payment shall be made annually for the duration of project operation.

The project owner also shall request an annual report from the California Wildlife Foundation or other third-party approved by USFWS documenting how each annual payment required hereunder was used and applied to assist in noxious weed management at the Antioch Dunes National Wildlife Refuge. The project owner shall provide copies of such reports to the CPM within 30 days after receipt. If the CPM determines that the USFWS has determined that the funds are not being applied as specified by this condition, then the project owner or an agent of the owner shall contract with another third party approved by the USFWS to directly implement noxious weed management until the CPM receives verifiable proof that the California Wildlife Foundation is using the funds as required.

Verification: No later than 30 days following the start of project operation, the project owner shall provide written verification to the CPM, USFWS, and CDFG that the first-annual payment was made to California Wildlife Foundation or other third-party approved by USFWS in accordance with this Condition of Certification. The project owner shall provide evidence that it has specified that its annual payment to California Wildlife Foundation or other third-party approved by USFWS can be used only to assist in noxious weed management and remediation of its effects (e.g., activities to support continued survival of Lange's

metalmark butterfly, Contra Costa wallflower, and Antioch Dunes evening primrose) at the Antioch Dunes National Wildlife Refuge as directed by the USFWS.

Thereafter, within 30 days after each anniversary date of the commencement of project operation, the project owner shall provide written verification to the CPM, USFWS, and CDFG that payment has been made to the California Wildlife Foundation or other third-party approved by USFWS in accordance with this Condition of Certification. This verification shall be provided annually for the operating life of the project.

EAST CONTRA COSTA COUNTY HABITAT CONSERVATION PLAN/NATURAL COMMUNITIES CONSERVATION PLAN MITIGATION FEES

BIO-21 The project owner shall pay mitigation fees for temporary and permanent impacts based on the acres of impact (Staff assumes a 1:1 mitigation ratio for temporary and permanent impacts) as a one-time development fee of $227,408 or updated fee as adjusted by the East Contra Costa County Habitat Conservancy (Conservancy), pending the approval date and the Annual Adjustment of mitigation fees. As a Participating Special Entity, the project owner would make a $200,000 contribution to recovery of endangered and threatened species. The project owner would also make a contribution to complementary conservation planning as determined by Conservancy's Governing Board.

Verification: A copy of the receipt of payment issued to Conservancy, verifying the funds have been paid, shall be provided to the CPM within 30 days prior to pre-construction site mobilization.

EAST CONTRA COSTA COUNTY HABITAT CONSERVATION PLAN/NATURAL COMMUNITIES CONSERVATION PLAN CERTIFICATE OF INCLUSION

BIO-22 The project owner shall provide a copy of the final East Contra Costa County Habitat Conservation Plan /Natural Communities Conservation Plan (ECCC HCP/NCCP) Certificate of Inclusion (permit). The terms and conditions contained in the incidental take permit shall be incorporated into the project's BRMIMP and implemented.

Verification: Within five business days of its receipt, and prior to pre-construction site mobilization, the project owner shall submit to the CPM a copy of the East Contra Costa County Habitat Conservancy's Certificate of Inclusion (permit) and verify that the permit terms and conditions are incorporated into the BRMIMP and will be implemented.

BIO-23 The project owner shall provide a copy of any U.S. Fish and Wildlife permit issued for the OGS Project (e.g., Incidental Take Permit). The terms and conditions contained in the permit shall be incorporated into the project's BRMIMP and implemented by the project owner.

Verification: The project owner shall submit to the CPM a copy of the USFWS permit within 15 days of issuance by the USFWS. At this time, the project owner shall also verify that the permit terms and conditions are incorporated into the BRMIMP and will be implemented.

B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the Oakley Generating Station (OGS) Project, including the project's potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality. The analysis also considers site contamination and any potential cumulative impacts to water quality in the vicinity of the project.

In accordance with the California Environmental Quality Act (CEQA) Guidelines and performance standards, this discussion evaluates whether the project would:

- Lead to accelerated wind or water erosion and sedimentation;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table;
- Substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial on-site or off-site erosion of siltation;
- Substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in on-site or off-site flooding;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows or expose people or structures to significant risk of loss, injury, or death involving flooding;
- Cause a substantial, or potentially substantial, adverse change in the quantity or quality of groundwater or surface water as a result of project water use; [1]
- Result in inundation by seiche, tsunami, or mudflow; and
- Comply with all applicable LORS, including water quality standards and waste discharge requirements. (CEQA Guidelines, Appendix G, Tit. 14, Cal Code Regs, §§ 15000 - 15387.)

We also evaluated the project's compliance with the applicable LORS presented below in **Soil and Water Table 1**. These LORS reflect a comprehensive

[1] The **Biological Resources** section of this Decision discusses the potential impacts of project construction on potentially jurisdictional waters and includes related Conditions of Certification to ensure that any such impacts are reduced to less than significant levels.

regulatory system, with adopted standards and established practices designed to prevent or minimize adverse impacts to soil and water resources.

Soil & Water - Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Federal	
Clean Water Act (33 U.S.C. Section 1251 et seq.)	The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of stormwater and wastewater discharges during construction and operation of a facility. California established its regulations to comply with the Clean Water Act under the Porter-Cologne Water Quality Control Act of 1967. These are normally addressed through a general National Pollutant Discharge Elimination System (NPDES) permit. For OGS, regulation of water quality is administered by the Central Valley Regional Water Quality Control Board (CVRWQCB).
Resource Conservation and Recovery Act	The Resource Conservation Recovery Act (RCRA) of 1976 (42 USC§ 6901 et seq., implemented at 40 CFR Part 260 et seq.) seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
40 Code of Federal Regulations, Part 423	The provisions of this part of the CFR are applicable to discharges resulting from the operation of a generating unit by an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas) or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium.
National Resources Conservation Service (NRCS), National Engineering Handbook, Sections 2 and 3 (1983)	Sections 2 and 3 of the USDA-NRCS National Engineering Handbook (1983) provide standards for soil conservation and erosion prevention during construction activity.
State	
California Constitution, Article X, Section 2	This section requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited.
California Environmental Quality Act, Public Resources Code Section 21000 et seq.	Defines CEQA Guidelines which contain the definitions of projects that can be considered to cause significant impacts to soil and water resources if not mitigated. The Energy Commission is the authority responsible for administration.

State (cont.)	
California Public Resources Code Section 25523(a); CCR Sections 1752, 1752.5, 2300-2309 and Chapter 2.5. Article 1	Sections 1752, 1752.5, 2300-2309 and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i) provide for the protection of environmental quality. They further require submission of information related to possible environmental effects to the Energy Commission. The Energy Commission must include environmental protection in their Decision on the AFC.
The California Safe Drinking Water and Toxic Enforcement Act	This Act (California Health & Safety Code Section 25249.5 et seq.) prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The Regional Water Quality Control Board (RWQCB) administers the requirements of the Act.
The Porter-Cologne Water Quality Control Act of 1967, Water Code Sec 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. Those regulations require that the RWQCBs issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
California Water Code Section 13260	Requires filing with the appropriate RWQCB a report of waste discharge that could affect the water quality of the state, unless the requirement is waived pursuant to Water Code section 13269.
California Water Code Section 13550	Identifies the use of potable domestic water for industrial uses as a waste or unreasonable use of water if a suitable supply of reclaimed water is available. The availability of reclaimed water is determined provided that the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.
California Water Code Section 13552.6	Specifically identifies the use of potable domestic water for cooling towers, if suitable reclaimed water is available, as a waste or unreasonable use of water. The availability of reclaimed water is determined based on criteria listed in Section 13550 by the SWRCB.
California Code of Regulations, Title 17	Title 17, Division 1, Chapter 5, addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines for projects that utilize reclaimed water.
California Code of Regulations, Title 22	Title 22, Division 4, Chapter 15, requires the California Department of Public Health (DPH) to review and approve the wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of recycled water for industrial processes such as steam production and cooling water. DPH also specifies Secondary Drinking Water Standards in terms of Consumer Acceptance Contaminant Levels, including TDS ranging from a recommended level of 500 mg/l, an upper level of 1,000 mg/l and a short term level of 1,500 mg/l.

State (cont.)	
California Code of Regulations, Title 23	Title 23, Division 3, Chapter 15, requires the RWQCB to issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
Delta Protection Act of 1992	Created mandates for the formation of primary and secondary Zones within the Sacramento-San Joaquin Delta and created the Delta Protection Commission to provide jurisdiction over all development activities within the primary zone. OGS is located in the secondary zone.
Local	
Contra Costa County Zoning Ordinance Title 10, Chapter 1014	Requires compliance with the Contra County Clean Water Program and the development of a Stormwater Management Plan.
Contra Costa County Clean Water Program	Requires significant new or redevelopment projects in Contra Costa County to design and implement storm water treatment measures to reduce the discharge of storm water pollutants to the maximum extent practicable.
City of Oakley Municipal Code	Provides standards of design for construction of drainage and erosion control elements. Requires permits for construction activities occurring within the limits of the City's jurisdiction. Permits are required for: grading, erosion control, encroachment, and onsite paving.
State Policies and Guidance	
SWRCB Resolution 77-1	State Water Resources Control Board Resolution 77-1 encourages and promotes recycled water use for non-potable purposes.
SWRCB Resolutions 75-58 and 88-63	The principal policy of the SWRCB that addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. Resolution 75-58 defines brackish waters as "all waters with a salinity range of 1,000 to 30,000 mg/l" and fresh inland waters as those "which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife". In a May 23, 2002 letter from the Chairman of the SWRCB to Energy Commission Commissioners, the principal of the policy was confirmed 'that the lowest quality cooling water reasonably available from both a technical and economic standpoint should be utilized as the source water for any evaporative cooling process utilized at these facilities'. Resolution 88-63 defines suitability of sources of drinking water. The total dissolved solids must exceed 3,000 mg/L for it not to be considered suitable, or potentially suitable, for municipal or domestic water supply.

State Policies and Guidance (cont.)	
SWRCB Res. 2009-0011 (Recycled Water Policy)	This policy supports and promotes the use of recycled water as a means to achieve sustainable local water supplies and reduction of greenhouse gases. This policy encourages the beneficial use of recycled water over disposal of recycled water. This policy states the following recycled water use goals: "Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (AF/y) by 2020 and by at least two million AF/y by 2030; Increase the use of stormwater over use in 2007 by at least 500,000 AF/y by 2020 and by at least one million AF/y by 2030; Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020; and Included in these goals is the substitution of as much recycled water for potable water as possible by 2030."
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq)	In the 2003 IEPR, consistent with SWRCB Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they will approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound." Additionally, the Energy Commission will require zero liquid discharge technologies unless such technologies are shown to be "environmentally undesirable" or "economically unsound".
California Water Code Section 461	Encourages the conservation of water resources and the maximum reuse of wastewater, particularly in areas with limited water supply.

Source: Ex. 300, FSA

The evidence establishes that with implementation of the adopted Conditions of Certification, there will be no significant environmental impacts and the project will comply with all applicable LORS.

The evidence on this topic was undisputed except as summarized below regarding the project's use of freshwater. (3/15/11 RT 67-77, 96-112, 3/25/11 RT 6-8; Exs. 1, §§ 5.11, 5.15, Appendixes 5.11 and 5.15; 11; 17; 18; 19; 20; 22 [Responses 6-17]; 33; 41; 46; 50; 55; 59; 62; 300, § 4.9.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Setting

The OGS site is located northeast of the junction of Highway 160 and Highway 4 in the City of Oakley, Contra Costa County, California. The site is bounded to the west by PG&E's Antioch Terminal (a large natural gas transmission hub), vacant and active industrial DuPont property to the north, DuPont's titanium oxide disposal area to the east and the BNSF railroad to the south.

The 21.95-acre OGS site is located within the “Western Development Area” (WDA) of the 210-acre DuPont parcel from which the OGS site was created. The OGS site is currently used as a vineyard and has not been developed for industrial use.

The construction laydown and parking areas will be located east and immediately adjacent to the project site. These areas are outside of the WDA but within DuPont property previously used for titanium oxide disposal. The titanium oxide landfill is still present. Approximately six acres of the the 20-acre laydown area are paved and the remaining 14 acres support non-native grassland.

A 1.6-acre conservation area is on the project site adjacent to the western property line. This area includes a 0.62-acre mitigation wetland identified as Wetland E.

The project site is generally located at the southern edge of the Sacramento-San Joaquin Delta (Delta) at an elevation of approximately 32 feet above mean sea level (MSL). The San Joaquin River is located north of the OGS site and flows northward towards the Sacramento-San Joaquin Delta (Delta). There are no surface waters within the site boundaries.

The OGS Project is within the Tracy subbasin of the San Joaquin Valley Basin., The subbasin is within the boundaries of the Central Valley RWQCB. Groundwater levels have remained relatively stable over the past 10 years, with seasonal fluctuations due to pumping and recharge. The basin is used for municipal and industrial supply with average well yields of 500 to 3,000 gallons per minute and average well depths of 188 feet for domestic wells and 352 feet for irrigation and municipal wells.

The quality of the groundwater varies throughout the basin with the areas of high chloride occurring near the San Joaquin River and areas of high nitrate in the northwestern portion of the basin. Elevated total dissolved solids (TDS) levels are also found in this subbasin with an average concentration of approximately 1,190 mg/L.

Municipal water in the project vicinity is provided by the Diablo Water District (DWD). The primary source of water for DWD is from the Delta, purchased from the Contra Costa Water District. Water supplied to the City of Oakley is a blended mix of pumped groundwater and Delta water. (Exs. 1, p. 5.11-2; 11; 300, pp. 4.9-5 - 4.9-6.)

2. Soil and Erosion

The Applicant developed a description of project area soils using resources that included the online Soil Survey of Contra Costa County, California (Natural Resources Conservation Service). The record describes the various categories of project area soils and establishes that the entire project site, laydown area, stockpile areas, and the majority of the transmission line corridor are associated with Delhi sand with two to nine percent slopes. These soils are deep and well drained, with a low shrink-swell potential. The evidence also shows that the west side of the transmission corridor crosses Sycamore silty clay loam and Zamora silty clay loam. These soils are finer in texture than Delhi sand, have somewhat lower permeability, and moderate shrink-swell potential.

The Applicant performed a geotechnical investigation to evaluate engineering characteristics of the soils. The June 2009 Preliminary Geotechnical Report indicates that a potentially liquefiable layer exists at the OGS site. The Applicant will conduct a final geotechnical investigation during development of the final design to confirm the presence or absence of this soil and recommend mitigation measures.

The evidence establishes that conditions that could lead to excessive soil erosion are not present at the OGS site. The site is relatively flat with an estimated average slope of two to nine percent, there are no surface waters on the project site, and the mean annual precipitation in Contra Costa County is about 13.7 inches per year with most of the precipitation occurring between November and March. (Exs. 1, pp. 5.11-1 - 5.11-5, 5.15-5 – 5.15-6; 300, pp. 4.9-8, 4.9-14 – 4.9-15.) OGS construction and operation activities are nonetheless expected to result in mitigable impacts.

a. Construction Impacts

The Applicant estimated the potential for wind erosion of surface material by calculating the total suspended particulates (TSP) that could be emitted as a

result of grading and wind erosion of exposed soil. (Ex. 1, p. 5.11-9.) **Soil and Water Table 2** below summarizes the predicted TSP.

Soil and Water - Table 2

Soil Loss from Grading and Wind Erosion

Emission Source	Acreage	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust:				
Project Site	21.9	2	0.754	0.264
Laydown Area (half of unpaved area)	6.49	1	0.112	0.039
Transmission Line Pole Holes	0.0092	1	0.0002	0.0001
Transmission Line Laydown Area	0.50	0	0.0	0.0
Wind Blown Dust:				
Project Site	10.95	23	7.99	2.80
Laydown Area	0.0	25	0.0	0.0
Transmission Line Corridor	1.73	6	0.329	0.115
Transmission Line Laydown Area	0.50	6	0.0	0.0
Soil stockpile areas	3.60	25	2.85	0.998
Estimated Total		**25**	**12.04**	**5.41**

Note: Assumptions for these calculations are provided in Appendix 5.11A.

Source: Ex. 1, AFC

Without mitigation, the maximum predicted erosion of material from the site is estimated at 12 tons during the construction period. With mitigation, this amount will be reduced to approximately 5.4 tons. The expected mitigation measures include water application and Best Management Practices (BMPs) as described in the Applicant's draft Storm Water Pollution Prevention Plan (SWPP) and drainage, erosion, and sediment control plan (DESCP).

The BMPs incorporate temporary and permanent erosion control measures. The temporary measures would be undertaken before construction begins and would be evaluated and maintained throughout the construction period. These construction-related BMPs will include activities such as revegetation, mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers.

The Applicant also estimated soil loss from water erosion. Without mitigation, the Applicant estimates soils loss would be approximately 63.4 tons. With implementation of the BMPs required by the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity, total project soil loss is estimated to be 1.5 tons. We find that this is a minimal amount of soil loss that will not result in a

significant impact to soil resources. (Exs. 1, pp. 5.8-13, 5.11-8 - 5.11-9; 300, pp. 4.9-14 - 4.9-16.)

To ensure implementation of the BMPs, we adopt Conditions of Certification **SOIL&WATER -1** and **-2**. These conditions collectively ensure that the project owner complies with the requirements of the NPDES permit. They also require the project owner to develop and implement (1) a site-specific DESCP that ensures protection of soil resources of the project site and all linear facilities for both construction and operation of the project and (2) a SWPPP for the construction of the entire OGS. Implementation of these conditions will cause the project to avoid significant soil erosion and subsequent sedimentation during construction and will ensure that construction activities will significantly contribute significantly to either occurrence.

b. Operation Impacts

The operation of OGS is not expected to involve soil-disturbing activities. By the time of facility operation, the site will be covered with impervious surfaces, gravel, or landscaping to minimize the amount of exposed soil. Even so, because the operation of OGS has potential to result in erosion impacts of exposed soil, on-site permanent erosion control measures such as graveling, paving, and installation of new drainage systems must be implemented as necessary. (Ex. 1, p. 5.11-13; 300, pp. 4.9-21 – 4.9-22.) We find that implementation of Condition of Certification **SOIL&WATER -1** (discussed above) will reduce operation-related erosion impacts to less than significant levels.

3. Soil and Groundwater Contamination

As discussed in the **Waste Management** section of this Decision, soil samples were collected from 21 locations at between zero and six feet below the ground surface as part of the Phase II Environmental Site Assessment. The samples were analyzed for volatile organic compounds (VOCs) and inorganic compounds, polychlorinated biphenyls (PCBs), petroleum compounds, dioxins, and furans. With the exception of arsenic, no compounds were found to be present above screening levels or risk-based screening concentrations (RBSCs). Arsenic occurs naturally at the site but was not found to exceed background levels. The Phase II ESA found that the WDA parcel does not require any further investigation prior to redevelopment. (Ex. 300, pp. 4.9-8 – 4.9-9.)

The construction laydown area was previously used by DuPont as a disposal area for titanium oxide which is still present in a layer approximately three feet thick. Titanium oxide is a very fine powder. Titanium oxide is an inert mineral pigment primarily used in paints, paper, and plastics. Neither Staff nor Applicant specified the location of the titanium oxide layer relative to existing grade and proposed grades. However, the evidence establishes that because excavation below ground surface is not proposed for the laydown area, there is little likelihood of encountering the titanium dioxide landfill during construction. (Exs. 1, p. 5.11-6; 300, pp. 4.9-9, 4.9-17, 4.9-21 -4.9-22.)

Implementation of Conditions of Certification **SOIL&WATER-2** (discussed above) and **-5** will ensure that any potential contamination impacts are reduced to less than significant levels. **SOIL&WATER-5** requires the project owner to comply with the requirements of the general NPDES permit for discharges of stormwater associated with industrial activity. Under this condition, the project owner must also develop and implement an industrial stormwater pollution prevention plan.

4. Stockpiles

During construction, OGS proposes to lower the site grades by up to seven feet to generate fill for future development on the DuPont property. Approximately 94,000 cubic yards of material will be removed from the project site and stockpiled in three areas on the DuPont property north of the project site. The stockpiles would be up to 20 feet high with slopes of 4:1 (horizontal to vertical). The project owner will stabilize the soil piles in accordance with all applicable BMPs. After stockpiling and stabilization take place, Du Pont will assume ownership and maintenance obligations. Staff was concerned about potential erosion of these sandy, non-cohesive soils given their close proximity to two non-jurisdictional wetlands. (Exs. 1, p. 5.22-13; 300, pp. 4.9-9., 4.9-15 – 4.9-16.)

To ensure that potential impacts are reduced to less than significant levels, Condition of Certification **SOIL&WATER-1** (Item 10) requires the DESCP to include specific BMPs to stabilize the stockpiles and capture eroded sediments to protect adjacent wetlands.

5. Stormwater Runoff and Drainage

Surface runoff from rainfall events flows toward the northwest corner of the OGS site. All of the surface runoff from the site is discharged to Wetland E, which is located at the northwest corner of the project site. Wetland E currently receives

runoff from a 25-acre area that includes the 21.95-acre OGS site and approximately three acres of the adjacent Antioch natural gas terminal.

Wetland E was constructed as mitigation for a nearby project and is located in a 1.6-acre conservation easement. The California Department of Fish and Game (CDFG) is the easement grantee with the right to restrict or prevent activities that would harm the intended function of the wetland.

According to the evidence, Wetland E does not currently have an outlet. In the event of an extreme runoff event, any discharge would flow over the low point into the existing road at the northern boundary of the conservation easement. A culvert currently connects Wetland E to a stormwater sump at a nearby DuPont parking lot and functions as an emergency spillway for the sump. The culvert has not been operated for past five years. (Ex. 300, p. 4.9-10.)

a. Construction Impacts

The project will implement stormwater management BMPs that include three bioswales (1-2, 4, and 5) and related drainage areas. Each bioswale would incorporate a perforated riser to control outflows from the swale. The bioswales are designed to detain runoff up to three feet deep before overtopping and passing additional runoff directly to Wetland E or the proposed detention basin.

Bioswale 1-2 would be approximately 1,320 feet long with a base width of two feet and would capture and treat runoff from the northern and eastern portions of the project site and discharge directly to Wetland E. Bioswale 4 would be about 320 feet in length with a two foot base width and would capture runoff from the southwestern portions of the project site and discharges directly into Bioswale 5. Bioswale 5 would be about 150 feet long and capture runoff from the existing Antioch natural gas terminal. Bioswale 5 will discharge into the proposed detention basin.

The proposed detention basin will be located on the western end of the project site adjacent to Wetland E. The basin would provide water quality treatment for runoff from the southern and eastern portions of the project site and stormwater storage to augment the flood control storage provided in Wetland E. The basin would utilize a perforated riser to control lower flow rates for small frequent storm events and to pass larger flow rates directly to Wetland E. The detention basin would be separated from Wetland E by a berm planted with trees to provide visual cover for the OGS plant.

Within the construction laydown area, a 1,350 feet long bioswale will capture and infiltrate stormwater runoff. The bioswale will be centrally located within the laydown area, and the graded portions of the laydown area would be graded to drain towards the proposed bioswale.

The Applicant submitted a Stormwater Monitoring Plan. Under this plan, stormwater discharges to existing wetlands including Wetland E and the wetlands adjacent to the proposed soil stockpiles would be visually inspected for high turbidity following storm events greater than 0.5 inches because the proposed project is a Risk Level 1 site. Non visible contamination from the possible failure of a BMP or a hazardous materials spill would be detected through sampling activities.

Staff determined that the Applicant's proposed stormwater BMPs will be adequate to limit potential impacts related to increases in stormwater runoff volumes and flow rates or water quality impacts if supplemented by an additional measure to improve sediment trapping during construction. Staff recommends the use of filter fences around the outlet structure risers with the bioswales and detention basin. According to Staff, the filter fences would be removed following completion of construction and revegetation and while in use, trapping suspended sediments and contaminants with filter fences prior to discharge to the wetland would limit potential impacts to the wetland to a less than significant level. (Exs. 11; 33; 300, pp. 4.9-18 – 4.9-20.)

We find that proper implementation, Applicant's and Staff's proposed measures would limit flood and water quality impacts related to increases in stormwater runoff and changes in runoff patterns during construction. We therefore determine that the proposed plans are reasonable at this level of project planning to avoid significant adverse impacts due to increases in stormwater runoff and changes in drainage patterns. Implementation of Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-2** will ensure that the BMPs and plans are implemented. **SOIL&WATER-1** requires OGS to prepare a final DESCP for both construction and operations, to assure these BMPs are implemented, and to maintain these BMPs following construction. Similar to the DESCP and in accordance with federal law, the RWQCB specifies that OGS is to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for construction activity required under Condition of Certification **SOIL&WATER-2**. The Applicant may develop a single DESCP/SWPPP to satisfy Conditions of Certification **SOIL&WATER-1 & -2**, provided that the report addresses the requirements for both documents.

b. Operation Impacts

During operations, OGS would route stormwater runoff through the above-described bioswales and detention basin prior to discharge to Wetland E. Contact runoff from areas with oil or other lubricants would be directed to an oil-water separator and directed to the sanitary sewer system. The proposed stormwater management plans for OGS must meet the requirements of the NPDES Permit, Contra Costa County Clean Water Program, and City of Oakley.

The evidence shows that the Applicant submitted a preliminary stormwater drainage design deemed satisfactory by Staff. The final design must comply with Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-5**. Certification **SOIL&WATER-1** requires the project owner to prepare and implement a DESCP, which shall provide sufficient detail to meet the requirements for a Stormwater Control Plan as required by CCCWP and a Hydrology and Hydraulics Report as required by the City of Oakley. The Industrial SWPPP required in **SOIL&WATER-5** requires implementation and maintenance of drainage control BMPs during operations. (Ex. 300, pp. 4.9-20 -4.9-29.)

We find that proper implementation and maintenance of the BMPs outlined in the draft SWCP, DESCP, and Industrial SWPPP would limit water quality impacts related to increased stormwater runoff and changes in runoff patterns during operations. With the additional efforts recommended by Staff to improve the hydraulic performance of the outlet structures proposed for the bioswales and pond (see, Ex. 300, pp. 4.9-24-4.9-26), the proposed plans are reasonable at this level of project planning to avoid significant adverse impacts due to increases in stormwater runoff and changes in drainage patterns.

c. Wetland E Monitoring and Adaptive Management

Compliance with Conditions of Certification **BIO-19** and **SOIL& WATER-6** will further ensure that potential impacts to Wetland E would be less than significant. These conditions require the project owner to develop and implement a Wetland E Monitoring and Adaptive Management Plan (Plan) (see **BIO-19**). The Plan must include elements including:

- Monitoring of water levels within Wetland E on a daily basis for at least one rainy season prior to construction, during construction, and during operations until the CDFG and CPM agree that water level monitoring is no longer needed to establish that there is no adverse impact to Wetland-E.

- Collecting water quality samples from the discharge point to Wetland E during the rainy season.
- Contingency plans to address adverse impacts to wetland habitat caused by changes in the the duration or extent of ponding or water quality in Wetland E that are attributable to project operation.
- Identities of responsible parties and funding source(s) for the implementation of the Monitoring and Adaptive Management Plan for the life of the project.
- Submitting annual monitoring reports to the CPM for review and approval for the life of the project or until the CPM determines reporting can be less frequent or eliminated. (Ex. 300, pp. 4.9-21 – 4.9-29.)

6. Wastewater Management

a. Construction Impacts

Sources of wastewater during OGS construction would include sanitary wastewater, equipment washing, line testing, and excavation dewatering. (Ex. 300, p. 4.9-12.) Improper handling or containment of construction wastewater could cause a broad dispersion of contaminants to soil or groundwater. Therefore, discharge of any non-hazardous construction-generated wastewater must comply with discharge regulations.

The record explains how the different types of wastewater will be handled. Sanitary waste would be collected in portable toilets and hauled offsite for disposal at a receiving facility. Wastewater from equipment washing activities would be collected and disposed of offsite. In total, approximately 510,000 gallons of wastewater would be generated by construction activities. (Ex 300, pp. 4.9-12, 4.9-20 – 4.9-21.) The Applicant's implementation of these measures, together with the BMPs and LORS specified in Conditions of Certification **SOIL&WATER-1** and **-2**, will ensure no significant impacts from construction-generated wastewater.

b. Operation Impacts

During plant operations, process wastewater would be generated from sources such as the reverse osmosis system, blowdown condensate, wash water and stormwater from equipment containment areas. This wastewater will be directed to the plant process drain system. Wastewater from process areas that could include oil or lubricants will be directed to an oil-water separator for treatment. The effluent from the oil-water separator would be combined with the other plant wastewater streams and sanitary wastes before being directed to the wastewater lift station. The wastewater would be pumped from the OGS and discharged into ISD's existing sanitary sewer system. (Ex. 300, pp. 4.9-12, 4.9-34 -4.9-35.)

The Applicant submits that industrial wastewater generated by OGS would be approximately 68 gallons per minute (gpm) on average and 159 gpm as a maximum when using fresh water supplied by DWD. The total annual average wastewater volume from OGS would be approximately 43 million gallons or 132 acre-feet when using the fresh water supply.

The Applicant received a will-serve letter from ISD indicating that they will have capacity to accept and treat a wastewater flow up to 200 gallons per minute from the OGS. Wastewater discharged from the OGS will need to meet all requirements set forth by ISD. Wastewater would be discharged to a new 6-inch force main and pumped 0.44 miles to ISD's 18-inch gravity sewer line near the intersection of Bridgehead Road and Main Street. (Exs. 11; 300, p. 4.9-13.) Condition of Certification **SOIL&WATER-7** limits OGS wastewater discharge to a maximum of 200 gpm and meet the wastewater discharge requirements at the ISD wastewater treatment plant as required by the Central valley Regional Water Quality Control Board. This condition also requires the project owner to develop and implement a Wastewater Discharge Sampling and Analysis Plan to demonstrate compliance with the Wastewater Discharge Requirements.

Should OGS convert to a recycled water supply as discussed below and contemplated by Condition of Certification **SOIL&WATER-4**, wastewater discharge would be expected to increase by 15-19 percent due to the additional filtration required and backwash returned to the wastewater treatment facility. Peak wastewater discharge would increase to about 200 gpm, and average discharge would be about 78 gpm. On an annual basis, about 51 million gallons or 157 acre-feet of wastewater would be discharged when using the recycled water supply. In addition, the quality of the wastewater discharge would decrease and salinity levels and concentrations of aluminum and other

constituents may be outside of the ISD wastewater discharge requirements. Additional wastewater treatment may also be required at OGS if the facility converted to a recycled water supply.

ISD's will-serve letter indicates its ability to adequately address increased demands on its facilities caused by the OGS Project. Should there be a problem in this regard, Staff identified two alternatives for the OGS Project: (1) be implementation of a Zero Liquid Discharge (ZLD) system to treat project wastewater as required by Energy Commission policy or (2) OGS could fund the District's salinity reduction program to help reduce salinity from other dischargers in the ISD service area. (Ex. 300, pp. 4.9-34 - 4.9-35.) Thus, the evidence establishes that the impact of the proposed project on existing wastewater treatment systems and water quality downstream of the site would be less than significant.

7. Project Water Supply

a. Construction and Operation Use

During the 33-month construction period, the project will require water for dust suppression, compaction, and miscellaneous additional activities. During operations, the OGS will require water for process and potable uses. Process water uses will include CTG inlet evaporative cooling, Reverse Osmosis (RO) permeate makeup, and blowdown makeup. Plant makeup water would be fed directly from the DWD connection (or a recycled water connection when such connection becomes feasible), to a 400,000 gallon service water/fire water storage tank. The storage tank will provide approximately eight hours of operational storage and two hours of fire protection storage. This water would be used directly for plant service water, irrigation, fire protection, and makeup to the RO system and CTG inlet air evaporative coolers. The RO system would be used to demineralize makeup water for the steam cycle and combustion turbine wash water. The OGS Project includes a 130,000-gallon demineralized water storage tank to provide 48 hours of storage to meet peak demands. (Exs. 1, pp. 5.15-9 – 5.15.-10, 62.)

During periods of high ambient temperatures, the air cooled heat exchanger would not be able to sufficiently cool the closed loop cooling water. To supplement the cooling system during these periods the OGS will use evaporative fluid coolers. This will result in higher water use during peak demand periods, which typically coincide with high temperatures.

The record further indicates that a minimal amount of potable water will be used for sanitary use, drinking, eye wash, and safety showers, and fire protection. (Ex. 1, p. 5.5-13.)

The project's expected construction and operation water use rates are summarized below in **Soil and Water Table 3.**

Soil & Water Table 3
OGS Water Usage Rates

OGS Water Use	Average Daily Use Rate (gpm)	Maximum Daily Use Rate (gpm)	Average Annual Use* (acre-feet)
Construction - DWD Potable Water Supply	150	400	96
Operations - DWD Potable Water Supply	95	369	240
HRSG	41	41	64
Evaporative Fluid Cooler	0	147	41
Inlet Air Cooling	31	158	83
Equipment Washdown / Irrigation	4.7	4.7	7.3
Potable Supply	0.5	0.5	0.8
Wastewater Discharge	68	159	132

Ex. 300, FSA; * Assumes 8,449 hours of operation with 1,500 hours at peak use rates

b. Water Sources and Impacts

The project intends to obtain potable water from the Diablo Water District for all of the project's initial water needs. The project will connect to an existing 24-inch water main that runs north-south through the project site. The record includes a will-serve letter from DWD affirming availability of sufficient potable water for the OGS Project. (Exs. 1, p. 5.15-9; 300, p. 4.9-31.) The OGS has no planned backup supply source.

OGS will not make direct use of groundwater resources and therefore, according to the Applicant, OGS will have no effect on groundwater quantity or quality. However, the evidence shows that DWD's water sources are the Delta and groundwater. More particularly, the majority of DWD's supply is untreated water purchased from the Contra Costa Water District through the U.S. Bureau of Reclamation Central Valley Project (CVP). DWD uses local ground water to supply a portion (less than 20 percent) of its supply. (*Id*.) Given this data, Staff

evaluated the project's potential impacts on the CVP and Sacramento-San Joaquin Delta.

OGS water use represents approximately three to five percent of DWD's total deliveries. DWD's 2005 Urban Water management Plan indicates that DWD is relying on increased purchases of CVP water from CCWD to provide much of the additional supplies required to meet future demand, including OGS demand.

Staff is concerned that DWD's reliance on increased future CVP allocations might be optimistic given documented reductions in CVP water allocations to water supply districts during drought periods. According to Staff, during periods of limited allocations, water users serviced by CVP contractors including DWD are required to limit their use of water. As a result, agricultural users south of the Delta have had full allocations in only one of the past 10 years, experienced allocations reduced by 25 to 60 percent in seven of 10 years and reduced by 90 percent in 2009. Urban users have only seen full allocations three of the past ten years and had their allocations cut by more than 20 percent in four of the past ten years. Staff is also concerned that existing supplies derived from the CVP project are significantly limited and as new users take up a portion of the limited water available, the potential for shortages and reduced water use for existing users.

Staff indicates that current ecological status of the Delta might also be affected by increased DWD water delivery. Referencing State Water Resources Control Board Resolution (SWRCB) 2010-0039, Staff asserts that the Delta is in ecological crisis and recent Delta flows have been inadequate to support aquatic habitat for endangered native fish species. Staff notes that although the determinations and recommendations of Resolution 2010-0039 are not LORS, it and Staff's consultations with SWRCB, suggest that as new Delta flow criteria or other regulatory means are adopted in the future to protect the environment within the Delta, CVP allocations could significantly decline in the future to levels below the allocation restrictions seen over the past 10 years. (Ex. 300, pp. 4.9-31 - 4.9-32.)

Although the Applicant disagrees with Staff's analysis and deems it speculative (see Ex. 50, p. 12), the Applicant has committed to converting to recycled water if such conversion becomes feasible by, for example, sizing the proposed water treatment building to accommodate the potential future installation of a microfiltration or ultrafiltration system to provide additional treatment of the recycled water supply upstream of the RO system. (Ex. 300, p. 4.9-32.)

Moreover, the Applicant participated in crafting and has agreed to Condition of Certification **SOIL&WATER-4**. Under this condition, freshwater supplied by the potable connection with Diablo Water District must be used as the primary water supply for project operation for process, sanitary, and landscape irrigation purposes. The condition also states that freshwater use shall not exceed the annual water-use limit of 250 acre-feet per year. However, after commencement of project operations and within 18 months of all of the following conditions being met, and assuming the CEC approves a project amendment allowing the project to use recycled water and dispose of the associated high TDS wastewater, the primary water supply for project operations including all process and landscape irrigation shall be exclusively recycled water provided by ISD or other Compliance Project Manager-approved entity that can provide recycled water with the same water quality as ISD.

Provided that OGS converts to a recycled water supply, implementation of **SOIL&WATER-4** will address Staff's concerns regarding Diablo Water District's increased freshwater (Delta water under the CVP and groundwater) use to meet the needs of OGS as well as existing and future DWD customers.

Because the project will not directly use groundwater, the Applicant's and Staff's respective analyses of potential groundwater impacts is succinct. The evidence shows that the OGS site has a shallow groundwater table. Flow at the site is generally north toward the San Joaquin River, which is approximately 0.6 miles from the site. The groundwater levels vary seasonally with high levels following the spring runoff period and low levels at the end of the dry season. The depth to groundwater ranges from approximately five to 15 feet below ground surface. There are no groundwater wells on the OGS site. (Exs. 11; 300, pp. 4.9-9, 4.9-17.)

The Phase I and Phase II ESAs for the DuPont property Western Development Area (discussed more fully in the **Waste Management** section of this Decision). The ESAs evaluate groundwater contamination adjacent to the WDA and related reporting shows that a ground water plume is located on the east boundary of the WDA. The project site is within the WDA but current data indicates it is unlikely that the plume will migrate to the project site. (Ex. 300, pp. 4.9-9, 4.9-17.)

The evidence does shows, however, potential for groundwater to be encountered during activities such as site excavation and construction of the replacement transmission towers. After the project owner completes the final geotechnical report, there will be sufficient information to support detailed design activities that

include providing a plan for management and discharge of water from the dewatering. The project owner shall address any potential groundwater dewatering in the final SWPPP to satisfy the requirements of Conditions of Certification **SOIL&WATER-2**. In addition, implementation of Condition of Certification **SOIL&WATER-3** requires the project owner to submit a complete Notice of Intent (NOI) for compliance with Central Valley RWQCB Order No. R5-2008-0081 for Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters. The Central Valley RWQCB will determine the adequacy of the planned BMPs to protect water quality and will impose more stringent discharge requirements if necessary. Compliance with Conditions of Certification **SOIL&WATER-2** and **-3** would prevent significant impacts to both groundwater and surface water resources from construction dewatering activities.

8. Flooding, Tsunami and Seiche, and Water Rise Potential

The project site is within flooding Zone X, as is defined by the Federal Emergency Management Agency. Zone X is an area outside of the 500- and 100-year floodplains. Flood risk as a result of project construction and operation is less than significant. Moreover, the proposed stormwater storage facilities would capture and retain all runoff from the project site should there be a 10-year, 100-year, or 100-year+10-year event. Compliance with the requirements of Condition of Certification **SOIL&WATER-1** will ensure that the project owner prepares and implements A DESCP that documents the 10-year, 100-year, and 100-year+10-year runoff events for the OGS site and assesses the impacts to the onsite storm drain system and Wetland E.

The evidence further establishes the remote likelihood of a seiche, or tsunami to impact the site, and that current predictions of sea level rise are below site grades. (Ex. 300, p. 4.9-30.)

9. Cumulative Impacts

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Res. Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c), 15130, 15335.)

The evidence contains the Applicant's and Staff's cumulative impact assessments. Regarding surface water/stormwater impacts, the OGS site is outside of the 100-year floodplain and stormwater runoff from the OGS site would be retained onsite. OGS would not increase flood flows or alter the water quality within the San Joaquin River and no significant cumulative impacts to surface water resources are expected.

With regard to potential groundwater impacts, the evidence establishes that the OGS Project would likely use freshwater supplied by DWD for construction and operation for a limited time. OGS would use about three to five percent of DWD's total water supply. During periods of shortage, DWD relies on increased groundwater pumping to make up for shortfalls in surface water allocations. Thus, during periods of allocation cuts, OGS's operational water supply could result in a 24 percent increase in groundwater pumping.

As a result, DWD would need to closely monitor groundwater pumping to ensure that the increased demands associated with OGS do not contribute to significant impacts to groundwater levels or groundwater quality. Through DWD's monitoring of the groundwater resource in the region, no significant cumulative impacts related to groundwater quantity or quality are anticipated as a result of OGS water needs.

Regarding water supply, the project would utilize fresh, potable water primarily derived from the Sacramento-San Joaquin Delta for construction and operational water supply until recycled water becomes economically feasible. The project's proposed fresh, potable supply would increase existing freshwater use from the Delta by up to 250 afy. The proposed freshwater supply would be provided by DWD through existing water rights agreements with CCWD and ultimately the USBR's CVP. The proposed fresh water use is consistent with the beneficial use requirements and within the permitted limits of the DWD and CCWD to provide water under the existing requirements for water rights and diversions from the Delta.

Furthermore, the surface water supply allocated to DWD is currently administered in accordance with these decisions and plans. Since the project water supply would be provided by a water supply district in accordance with their approved allocations under an adopted regulatory framework, we do not find that there is a cumulative significant impact due to project water use.

Finally, as to project wastewater, wastewater including cooling tower blowdown and stormwater from the power block will be routed to Ironhouse Sanitary District's wastewater treatment plant under an existing Industrial Wastewater Discharge Permit. Ironhouse Sanitary District has indicated that it has sufficient capacity to treat wastewater discharged from OGS and no significant cumulative impacts related to wastewater discharge are anticipated as a result of OGS. (Ex. 300, p. 4.9-37.)

10. Compliance with LORS

We evaluated the project elements and concur with the Applicant's and Staff's independent conclusions that the project will comply with the LORS set forth in **Appendix A** that address protection of water resources, storm water management, erosion control, the use of drinking water and freshwater, and wastewater discharge. We incorporate by reference Staff's analysis of LORS compliance as set forth in the Final Staff Assessment. (Ex. 300, pp. 4.9-37 – 4.9-40.)

Intervenor Sarvey submitted a post-hearing brief essentially arguing that the project's use of freshwater from the Diablo Water District violates state LORS and Energy Commission policy. Sarvey raises new issues that could have and should have been raised in the proceedings by direct and rebuttal testimony and cross-examination of witnesses. There are no new facts or changed circumstances presented since the close of the record that warrants our consideration of these new issues. Even so, in considering in the merits of Sarvey's argument, we conclude that the evidence of record identifies the applicable LORS and policies. None of these authorities require a dry-cooled power plant such as the OGS to use only recycled water nor do they prohibit dry-cooled facilities from using freshwater.

11. Agency and Public Comments

Energy Commission conferred with Ironhouse Sanitary District General Manager Tom Williams regarding the future availability of recycled water for the OGS Project. According to Staff, Mr. Williams expressed ISD's commitment to supply recycled water to OGS but explained that waste water discharged back to ISD must meet its wastewater discharge requirements. ISD's existing discharge is close to the discharge limitations particularly for salt. Staff further stated that Mr. Williams also indicated that there could be grant funding available to help ISD implement a recycled water distribution pipeline to offset a portion of the costs

associated with the recycled water conversion. In response to ISD's input, Staff proposed Conditions of Certification **SOIL&WATER-4** and **-8**, requiring OGS to examine the economic feasibility on an biennial basis until an economically feasible approach to a recycled water supply can be developed and to switch to recycled water once it becomes economically feasible. (Ex. 300, p. 4.9-37.)

FINDINGS OF FACT

Based upon the evidence of record before us, we find and conclude as follows:

1. Implementation of Best Management Practices (BMPs) during OGS construction and operation in accordance with effective Storm Water Pollution Prevention Plans (SWPPP) and a Drainage Erosion and Sediment Control Plan (DESCP), will avoid significant adverse erosion effects that could otherwise result in significant transport of sediments or contaminants to Mitigation Wetland E.

2. The project will not significantly increase erosion rates with implementation of Conditions of Certification **SOIL&WATER-1** and **-2**.

3. Potential on-site drainage impacts to on-site structures and offsite property will be mitigated to insignificant levels with implementation of Conditions of Certification **SOIL&WATER-1** and **-3**.

4. Stormwater runoff from the 21.95-acre site will not cause significant impacts with the implementation of the stormwater runoff swales and extended detention basin.

5. Impacts to Wetland E are reduced to insignificant levels with implementation of the Conditions of Certification.

6. During construction, the MEP site will not directly impact groundwater resources with the implementation of Condition of Certification **SOIL&WATER-2 and 3.**

7. Containment and disposal of wastewater via Ironhouse Sanitary District will reduce the potential impacts from wastewater below the level of significance. The discharge of wastewater under the conditions stipulated in the Ironhouse Sanitary District's Wastewater Discharge Permit would meet the Central Valley Regional Water Quality Control Board's standards.

8. OGS will neither cause nor contribute to cumulative impacts to soil and water resources.

9. The OGS is not located in a 100-year flood plain and will not increase downstream flood conditions.

10. To avoid freshwater use for the life of the project, the project shall convert to recycled water use as its primary supply when it becomes feasible to do so. The feasibility analysis and conversion shall be in accordance with Conditions of Certification **SOIL&WATER-4** and **-8**.

11. The Conditions of Certification, below, are adequate to ensure that construction and operation of the OGS will comply with LORS and will not create significant adverse impacts to the matters addressed in the discipline of **Soils and Water Resources**.

CONCLUSION OF LAW

1. We therefore conclude that the project will conform to all applicable laws, ordinances, regulations, and standards identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

SOIL&WATER-1: Prior to site mobilization, the project owner shall obtain compliance project manager (CPM) approval for a site-specific Drainage, Erosion and Sedimentation Control Plan/Stormwater Control Plan (DESCP / SWCP) that ensures protection of water quality and soil resources of the project site for both the construction and operational phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, meet local requirements (including Contra Costa County Clean Water requirements), and identify all monitoring and maintenance activities. The plan shall be presented in an organized report format with clear descriptions of the proposed stormwater management plans, design and intended function of major stormwater control and water quality treatment Best Management Practices, and flood control facilities. The plan shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1** and may incorporate by reference any SWPPP developed in conjunction with any NPDES permit.

The DESCP shall contain elements 1 through 11 below outlining site management activities and erosion- and sediment-control and water quality treatment BMPs to be implemented during site mobilization, excavation, construction, and post construction (operating) activities.

1. Vicinity Map – A map(s) at a minimum scale 1”=100’ shall be provided indicating the location of all project elements (construction site, laydown area, pipelines) with depictions of all significant geographic features including swales, storm drains, and sensitive areas.
2. Site Delineation – All areas subject to soil disturbance for the OGS project (project site, laydown and parking area, and any other project elements) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
3. Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. It shall indicate the proximity of those features to the OGS construction, laydown and parking areas.
4. Drainage Map – The DESCP shall provide a topographic site map(s) at a minimum scale of 1”=100’ showing existing, interim, and proposed drainage swales and drainage systems and drainage-area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet.
5. Narrative of Project Site Drainage – The DESCP shall include a narrative of the drainage measures necessary to protect the site and potentially affected soil and water resources within the drainage(s) on and downstream of the site. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer and erosion control specialist. The narrative shall state the watershed size(s) in acres including a breakdown of surface treatments (paved, buildings, gravel, landscape, etc) that was used in the sizing of drainage features. The hydraulic analysis shall be used to support the selection and sizing of BMPs and structural controls to divert off-site and on-site drainage around or through the OGS site and laydown areas.
6. Clearing and Grading Plans – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography shall be illustrated by tying in proposed contours with existing topography.
7. Clearing and Grading Narrative – The DESCP shall include a table with the quantities of material excavated or filled for the site and all project elements (project site, laydown area, transmission and

pipeline corridors, roadways, and bridges) whether such excavation or fill is temporary or permanent, and the amount of such material to be imported or exported.

8. Best Management Practices Plan – The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization). The DESCP shall identify appropriate water quality treatment BMPs to target sediment, metals, and hydrocarbons that are numerically sized to meet the requirements of the Contra Costa County Clean Water Program. The proposed BMPs shall include three Bioswales around the site perimeter and an extended detention basin at the western boundary of the project site. Outlet structures and BMP designs shall allow low flows to pass through the BMPs to Mitigation Wetland E to maintain the hydraulic function of the Wetland including passing the Water Quality Flow Rate with one foot of flow depth. Orifices within each outlet structure shall be spaced vertically to maintain hydraulic function as sediment deposits within the base of the structure. Outlet structures shall incorporate filter fencing to trap eroded sediments during construction. If necessary, trapped sediments may need to be removed from the Bioswales and detention basin following construction, and the BMPs reseeded.

9. Best Management Practices Narrative – The DESCP shall show the location (as identified in #8 above), timing, and maintenance schedule of all erosion- and sediment-control and water quality treatment BMPs to be used prior to initial grading, during all project element (site, pipelines) excavations and construction, final grading/stabilization, and operation. Separate BMP implementation schedules shall be provided for each project element for each phase of construction. The maintenance schedule shall include post-construction maintenance of structural-control BMPs, or a statement indicating when such information will be available.

10. Soil Stockpile BMP Plan – The DESCP shall include specific BMPs to stabilize soil stockpiles and capture eroded sediments to protect adjacent wetlands. The BMPs shall include appropriately spaced fiber rolls, geotextile erosion control fabrics, hydroseeding with a local native grass mix, watering as necessary to maintain a healthy stand of grass, and a regular monitoring and maintenance plan for a period of at least two years. Monitoring and maintenance shall continue until the all stockpiles are fully stabilized. If DuPont takes possession of the stockpiles to utilize the soil prior to completion of the two year maintenance period, the project shall provide notice from DuPont indicating that DuPont will assume responsibility for

the stockpiles and maintain the stockpiles in accordance with the approved Soil Stockpile BMP Plan.

11. Hydrology and Hydraulic Reporting – The DESCP shall include final hydrology and hydraulic calculations demonstrating that the proposed stormwater management plans have the capacity to convey, capture, and control runoff from a 10-year, 100-year, and 10+100-year events as required by Contra Costa County and the City of Oakley. A 1-inch rainfall event shall also be analyzed to demonstrate that the delivery of runoff to Mitigation Wetland E would not be impacted during small frequent rainfall events. Losses due to infiltration in sandy soils (Hydrologic Soil Group A) within all bioswales and the proposed detention pond shall be estimated and accounted for in analyses of the one-inch rainfall event.

Verification: No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the DESCP for construction activity and operations to the City of Oakley, Contra Costa Clean Water Program, and the Central Valley RWQCB (CV RWQCB) for review and comment. No later than 60 days prior to start of site mobilization, the project owner shall submit the DESCP with any comments received from the City, CCCWP and/or CV RWQCB's to the CPM for review and approval. The CPM shall consider comments by the City, CCCWP and CV RWQCB before approval of the final DESCP. The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1** and relevant portions of the DESCP shall clearly show approval by the chief building official.

During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage, erosion and sediment control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall provide in the annual compliance report information on the results of monitoring and maintenance activities. No later than 14 days prior to the transfer of ownership of the soil stockpiles to DuPont, the project owner shall submit a letter to the CPM from DuPont indicating that DuPont will assume responsibility to maintain the stockpiles in accordance with the approved Soil Stockpile BMP Plan.

SOIL&WATER-2: The project owner shall comply with the requirements of the general National Pollutant Discharge Elimination System (NPDES) permit for discharge of stormwater associated with construction activity (NPDES Permit No. CAS083313). The project owner shall develop and implement a construction stormwater pollution prevention plan (construction SWPPP) for the construction of the OGS site, laydown area, and all linear facilities.

Verification: The project owner shall submit to the CPM a copy of the construction SWPPP prior to site mobilization and retain a copy on site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the CV RWQCB regarding the NPDES permit for the

discharge of stormwater associated with construction activity within 10 days of its receipt or submittal. Copies of correspondence shall include the notice of intent sent to the State Water Resources Control Board, and the board's confirmation letter indicating receipt and acceptance of the notice of intent.

SOIL&WATER-3: If groundwater is encountered during construction or operation of the OGS, the project owner shall comply with the requirements of the Central Valley RWQCB Order NO. R5-2008-0081 for Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters.

Verification: Prior to any groundwater discharge or dewatering activities, the project owner shall submit a complete NOI to obtain coverage under Central Valley RWQCB Order No. R5-2008-0081. The project owner shall submit copies to the CPM of all correspondence between the project owner and the Central Valley RWQCB regarding Order No. R5-2008-0081 within 10 days of its receipt or submittal. This information shall include a copy of the NOI for compliance with Order No. R5-2008-0081 or other discharge requirements determined by the Central Valley RWQCB.

SOIL&WATER-4: Freshwater supplied by the potable connection with Diablo Water District (DWD) shall be used as the primary water supply for project operation for process, sanitary, and landscape irrigation purposes. Freshwater use shall not exceed the annual water-use limit of 250 acre-feet per year.

Following commencement of project operations and within 18 months of all of the following conditions being met, and assuming the California Energy Commission approves a project amendment allowing the project to use recycled water and dispose of the associated high TDS wastewater, the primary water supply for project operations including all process and landscape irrigation shall be exclusively recycled water provided by Ironhouse Sanitary District (ISD) or other entity that can provide recycled water with the same water quality as ISD as approved by the CPM:

- ISD or other entity as approved by the CPM has constructed a recycled water pipeline passing within one mile of the Oakley Generating Station and capable of delivering a minimum of 409-gpm of disinfected tertiary recycled water meeting Title 22 requirements to the Oakley Generating Station.
- ISD or other entity as approved by the CPM has constructed a high TDS wastewater pipeline passing within one mile of the Oakley Generating Station and capable of accepting a minimum of 200-gpm or wastewater having TDS and concentrations of individual constituents of up to four times the TDS and concentrations of

individual constituents of the recycled water supplied to the Oakley Generating Station.

- ISD or other entity as approved by the CPM has acquired the necessary easements/rights of way to extend the recycled water and high TDS wastewater pipelines to the Oakley Generating Station.
- ISD or other entity as approved by the CPM has established rates and charges for recycled water that are and will remain no greater than those of Diablo Water District for potable water.
- ISD or other entity as approved by the CPM has established rates and charges for the discharge of high TDS wastewater that are and will remain no greater those of ISD for discharge of sanitary wastewater.
- ISD or other entity as approved by the CPM will charge no additional fees for connection to the recycled water and high TDS discharge pipelines beyond those fees paid by the project for the initial connection to the ISD sanitary sewer system.
- DWD, and ISD if another entity provides recycled water, have agreed to waive any claims regarding duplication of service with respect to the use of recycled water at the Oakley Generating Station.

Within six months of all of the criteria outlined being met, the project owner shall submit an amendment pursuant to California Code of Regulations Title 20 Section 1769(a) proposing project use of recycled water.

Use of recycled water shall be limited to 280 acre-feet per year (or as determined in review of the project amendment). After the project switches to the primary recycled water supply, the backup water supply for project operation for process and landscape irrigation shall be freshwater provided by the potable connection with DWD. The use of freshwater from DWD for these purposes shall be limited to 25 acre-feet per year. The project owner shall notify the CPM of any disruptions in the primary recycled water supply exceeding 24 hours. For any planned disruption in the primary recycled water supply that will exceed seven days, the project owner shall obtain CPM approval on a water supply disruption plan that outlines the reasons and duration for the planned disruption, and the volume of secondary water that will be utilized during the planned disruption. Sanitary water shall be supplied by the potable connection with DWD as a part of their supply is prohibited for operational use.

Prior to using potable and recycled water for construction or operational uses, the project owner shall install and maintain metering devices as part of the water supply and distribution systems to monitor

and record, in gallons per day, the total volume(s) of water supplied to OGS from DWD and ISD. Those metering devices shall be operational for the life of the project.

The project owner shall monitor and record the total water used on a monthly basis including recycled water from ISD and potable water from DWD. For calculating the annual water use, the term "year" will correspond to the date established for the annual compliance report (ACR) submittal. For the first year of operation, the project owner shall prepare an annual Water Use Summary, which will include the monthly range and monthly average of daily potable and recycled water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average water use by the project. The annual Water Use Summary shall be submitted to the CPM as part of the ACR.

Verification: At least 60 days prior to commercial operation of OGS, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the water supply and distribution systems. When the metering devices are serviced, tested and calibrated, the project owner shall provide a report summarizing these activities in the next annual compliance report. The project owner, in the annual compliance report, shall provide a Water Use Summary that states the source and quantity of potable and recycled water used on a monthly basis and on an annual basis in units of acre-feet. The project owner shall include in the annual compliance report information sufficient for the CPM to determine the status of the recycled water program being implemented by ISD and which criteria for use of recycled water have been met and what remains to be completed to satisfy the criteria for use of recycled water. Prior annual water use including yearly range and yearly average shall be reported in subsequent annual compliance reports (ACR).

SOIL&WATER-5: The project owner shall comply with the requirements of the general NPDES permit for discharges of stormwater associated with industrial activity. The project owner shall develop and implement an industrial stormwater pollution prevention plan for the operation of OGS Project.

Verification: The project owner shall submit to the CPM a copy of the industrial SWPPP for operation of the OGS Project prior to commercial operation, and shall retain a copy on site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the CV RWQCB regarding the general NPDES permit for discharge of stormwater associated with industrial activity within 10 days of its receipt or submittal. Copies of correspondence shall include the NOI sent by the project owner to the State Water Resources Control Board.

SOIL&WATER-6: Upon project approval, the project owner shall develop and implement a Wetland E Monitoring and Adaptive Management Plan (Plan) (see **BIO-19**). The Plan shall include:

1. Monitoring of water levels within Mitigation Wetland E on a daily basis for at least one rainy season prior to construction, during construction, and during operations until the CDFG and CPM agree that water level monitoring is no longer needed to establish that there is no adverse impact to Wetland E. Water level monitoring shall demonstrate no adverse impacts to Wetland E's function as wetland habitat due to changes in ponding extent or duration as compared to pre-project conditions.

2. Water quality samples shall be collected from the discharge point to Wetland E during the rainy season. Discharge samples shall be collected following the first three rainfall events of 0.5 inch or greater for each year of construction and the first five years of operation. In addition, water quality sampling and analysis shall be required for the first three rainfall events of 0.5 inch or greater following a reported release of hazardous materials at the site. If sample analysis results exceed RWQCB Benchmark values or US EPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life during the first five years of operation or following a release of hazardous materials, water quality sampling and analysis shall continue until three contiguous years of water quality analyses meet the RWQCB Benchmark values and US EPA Water Quality Criteria. Sample analyses shall include tests for pH, Dissolved Oxygen, Total Suspended Solids, Specific Conductance, Oil & Grease, and metals (Arsenic, Chromium, Iron, Selenium, Lead, Mercury, etc.). Sample analysis results shall be compared to RWQCB Benchmark Values and US EPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life. If analysis results exceed, RWQCB Benchmark values or US EPA Water Quality Criteria, contingency plans should be implemented to improve or augment the stormwater quality treatment Best Management Practices on site. The plan should describe the sampling and analysis methods proposed.

3. Contingency plans to address adverse impacts to wetland habitat caused by changes in the the duration or extent of ponding or water quality in Wetland E that are attributable to project operation.

4. Identify the responsible parties and funding source(s) for the implementation of the Monitoring and Adaptive Management Plan for the life of the project.

5. Annual monitoring reports shall be submitted to the CPM for review and approval for the life of the project or until the CPM determines reporting can be less frequent or eliminated. If adverse impacts to

the functioning of Wetland E as wetland habitat are documented, the annual monitoring report shall outline measures to be implemented to address the adverse impacts. The annual monitoring report shall provide an update on the implementation of any contingency measures identified in previous annual monitoring reports.

Verification: At least 60 days prior to the start of any construction related ground disturbance, the project owner shall submit a copy of the Draft Wetland E Monitoring and Adaptive Management Plan to the Compliance Project Manager (CPM) for review and approval, and the California Department of Fish and Game (DFG) and the Central Valley RWQCB (CV RWQCB) for review and comment. The CPM in consultation with DFG and the CV RWQCB, will determine the plan's acceptability. At least 15 days prior to the start of any construction related ground disturbance, the project owner shall provide the CPM with the final version of the Wetland E Monitoring and Adaptive Management Plan that has been reviewed and approved by the CPM, in consultation with DFG and the CV RWQCB.

The Wetland E Monitoring and Adaptive Management Plan shall be implemented prior to construction, including a minimum of one rainy season of pre-construction data collection. During construction, the project owner shall provide all monitoring data in the monthly compliance report on the effectiveness of the drainage, erosion and sediment control measures and the results of monitoring and maintenance activities. The project owner shall submit copies to the CPM of all correspondence between the project owner and DFG and/or the CV RWQCB regarding the Wetland E Monitoring and Adaptive Management.

The project owner shall submit annual reports to the CPM, DFG, and the CV RWQCB detailing the results of water level monitoring and water quality sampling and analysis. The annual reports shall also document all maintenance activities implemented and compliance with all goals, objectives and performance standards in the Wetland E Monitoring and Adaptive Management Plan. The annual monitoring reports shall fully describe the status of the hydrology and water quality at Wetland E and any adaptive management measures implemented. Annual monitoring reports shall be submitted for review and approval annually within 30 days of the anniversary date of the commencement of habitat improvements for the life of the project.

SOIL&WATER-7: The project owner shall limit wastewater discharge to a maximum of 200-gpm and comply with the Ironhouse Sanitary District's Wastewater Discharge Requirements stipulated under Central Valley Regional Water Quality Control Board Order Number R5-2008-0057 NPDES Number CA0085260. The project owner shall develop and implement a Wastewater Discharge Sampling and Analysis Plan to demonstrate compliance with the Wastewater Discharge Requirements. The plan shall identify sampling location(s), frequency, and methods, and identify appropriate water quality analyses to be performed by a state-certified analytical laboratory.

Verification: No later than 90 days prior to operation, the project owner shall submit to the Ironhouse Sanitary District a copy of the Wastewater Discharge Sampling and Analysis Plan for review and comment. No later than 60 days prior to operation, the project owner shall submit the Wastewater Discharge Sampling and Analysis Plan with the Ironhouse Sanitary District's comments to the CPM for review and approval. The CPM shall consider Ironhouse Sanitary District's comments before approval of the final Wastewater Discharge Sampling and Analysis Plan. The project owner shall provide information on the results of sample analysis results for wastewater discharge in the annual compliance report. The project owner shall submit copies to the CPM of all correspondence between the project owner and Ironhouse Sanitation District DFG and/or the CV RWQCB regarding wastewater discharge.

C. CULTURAL RESOURCES

The potential for impacts to cultural resources depends upon whether such resources are present and whether they would actually be encountered during project development and construction activities. Cultural resource materials such as artifacts, structures, or land modifications reflect the history of human development.

Certain places that are important to Native Americans or local national/ethnic groups are also considered valuable cultural resources. Analysis in this topic area pertains to the structural and cultural evidence of human development in the project vicinity, as well as appropriate mitigation measures should cultural resources be disturbed by project excavation and construction. Potential impacts to these resources from the proposed project may include, but are not limited to destruction of resources, alteration of a historical feature and diminishment of the significance of a cultural resource caused by construction and operation the facility.

Under CEQA, a project could result in significant impacts on cultural resources if the project any of the following occur:

- A substantial adverse change in the significance of a historical resources as defined in Title 14, California Code of Regulations, section 15064.5;
- A substantial adverse change in the significance of an archaeological resource pursuant to Title 14, California Code of Regulations, section 15064.5; or
- Directly or indirectly destroys a unique paleontological resource or site or unique geologic feature?[1]
- Disturbs any human remains, including those interred outside of formal cemeteries. (Guidelines, **Appendix G**.)

Staff's assessment of the project's potential impacts to cultural resources incorporates and expands upon these significance criteria. Staff specifically considers whether a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR;
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical

[1] The potential for this impact is discussed in the **Geology and Paleontology** section of this Decision.

resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant;

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR, as determined by a lead agency for purposes of CEQA. (Ex. 300, pp. 4.3-24.)

When a cultural resource is determined to be significant, it is eligible for inclusion in the California Register of Historic Resources (CRHR). (Pub. Res. Code, § 5024.1; Cal. Code Regs., tit. 14, § 4850 et seq.) An archaeological resource that does not qualify as an historic resource may nonetheless be considered a "unique" archaeological resource under CEQA. (*See* Pub. Res. Code, § 21083.2.) In addition, structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a five-year lag in the planning process.

The CEQA Guidelines define historical resources to include:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR;
2. A resource included in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code; or
3. Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. (Cal. Code Regs., tit. 14, § 15064.5(a).)

Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the National Register of Historic Places (NRHP) as well as California Registered Historical Landmarks from No. 770 onward. (Pub. Res. Code, § 5024.1(d).)

Under the CEQA Guidelines, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old, a resource must meet at least one of the following four

criteria: (1) it is associated with events that have made a significant contribution to the broad patterns of our history (Criterion 1); (2) it is associated with the lives of persons significant in our past (Criterion 2); (3) the resource embodies the distinctive characteristics of a type, period, or method of construction, or that it represents the work of a master, or possesses high artistic values (Criterion 3); or, (4) the resource has yielded, or may be likely to yield, information important to history or prehistory (Criterion 4). (Pub. Res. Code, § 5024.1.) Historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. (Cal. Code Regs., tit. 14, § 4852(c); Pub. Res. Code, § 5020.1 (j), 5024.1.)

Even if a resource is not listed, or determined to be eligible for listing, in the CRHR, CEQA allows the lead agency to make a determination as to whether the resource is a historical resource.

Cultural resources are typically placed in one of three categories, classified by their origins: prehistoric, ethnographic, and historic. Prehistoric archaeological resources are those resources that resulted from human occupation and use of California prior to prolonged European contact. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American human behavior. Ethnographic resources are those resources that represent the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. These resources may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures. Historic-period resources, both archaeological and architectural, are associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, traveled ways, artifacts, or other evidence of human activity. (Ex. 300, pp. 4.3-1 - 4.3-2.)

Our evaluation also considers the applicable law, ordinances, resolutions, and standards (LORS) as set forth below in **Cultural Resources Table 1**.

CULTURAL RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
State	
Public Resources Code 5097.98(b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance.
California Health and Safety Code, Section 7050.5	This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	
City of Oakley General Plan *(City of Oakley, 2002. Amended 2010)*	Open Space and Conservation Element Goal 6.4 Encourage preservation of cultural resources within the Plan Area. Policy 6.4.1 Preserve areas that have identifiable and important archaeological or paleontological significance.
City of Antioch General Plan *(City of Antioch, 2003)*	Cultural Resource Objective: Preserve archaeological, paleontological, and historic resources within the Antioch Planning Area for the benefit and education of future residents. Cultural Resource Policies: **a**. Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code. **b**. If avoidance and/or preservation in the location of any potentially significant cultural resources is not possible, the following measures shall be initiated for each impacted site: • Native American monitoring • Development of a test-level research design • Complete the excavation program as specified in the research design. • Development a Treatment Plan to mitigate project effects on cultural resources, if they cannot be avoided. • Implementation of Treatment Plan. **c**. As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources. **d**. Preserve historic structures and ensure that alterations to historic buildings and their immediate settings are compatible with the character of the structure and surrounding neighborhood.

Source: Ex. 300, FSA

The evidence on this topic was undisputed. (3/15/11 RT 67-77, Exs. 1, § 5.3, Appendix 5.3; 2 [Responses 9 -11]; 11 [Responses 44 – 46]; 32; 46; 50; 55; 300, §4.3.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Setting and Features

The Oakley Generating Station (OGS) site is located in Oakley, California, in northeastern Contra Costa County. The site is currently zoned Heavy Industrial (H-1) and is designated in Oakley's General Plan as Utility Energy (UE). Nearby land uses consist mainly of industrial and agricultural uses, with single family residential uses within one mile of the site. The general area is a mix of early and mid-twentieth century residential and late twentieth century planned development, utility uses, industrial uses, commercial construction and two transportation corridors. (Exs. 1, pp. 5.3-16 – 5.3-17; 300, p. 4.3-5.)

The 21.95-acre project site is currently under cultivation as vineyards and has been since the early 1960s. The site was created from and will occupy a portion existing E. I. du Pont de Nemours and Company (DuPont) property comprised of 210 acres. (Ex. 1, p. 5.3-10.)

The project site is directly north of PG&E's Antioch Terminal, which will supply the natural gas for the project by way of one or two newly constructed pipelines (300 feet long and 410 feet long, respectively). The lines would be constructed using an open trench method, with the trench likely being 30 inches wide and 54 inches deep. Boring or directional drilling would be used where the pipeline passes beneath other buried utilities. (Ex. 1, p. 4-1.)

The project will use connections to an existing onsite potable water line. A new 0.44-mile sanitary sewer force main will be constructed to run south from an interconnection point in Bridgehead Road to Main Street in Oakley, then turn east for 0.11 miles to the interconnection point with Ironhouse Sanitary District's gravity main. (Exs. 1, p. 2-1; 11, p. 1-1; 300, pp. 4.3-5 – 4.3-6.)

The 20-acre construction laydown and parking area is east of and adjacent to the project site, also on DuPont property. This area was previously used by DuPont for dumping titanium dioxide byproducts of paint manufacturing and has been previously graded. The laydown/parking area is bordered by a dirt road on the southern edge and by a railroad spur along its eastern edge. The northern half

of the laydown area is paved with concrete. Several building footings and piles of building debris remain in the area. (Exs. 1, p. 2-33; 46; 50; 300, p. 4.3-6.)

The OGS will connect to the regional electrical grid via a 2.4-mile long transmission line between the new switchyard and the 230-kV Contra Costa Substation in Antioch. The transmission line would be placed within PG&E's existing 80-foot wide, 60-kV transmission line right-of-way. Eighteen existing towers will be replaced with 95-foot steel-pole structures and one new pole would be added. (Exs. 1, pp. 5.2-33, 3-1 – 3-2; 300, p. 4.3-6.)

The existing transmission line corridor runs south for approximately one mile from the proposed project site, adjacent to SR 160, which was constructed in the 1970s. It then turns west and continues for approximately 1.4 miles until it reaches the Contra Costa Substation. The corridor crosses paved roads, freeway entrances and exits, vineyards, residential yards, and parking lots. A majority of the east-west segment runs adjacent to a paved recreational path. The easternmost section of the east-west portion runs through a vacant parcel along a dirt road. The transmission corridor will traverse several different land uses within the City of Oakley and City of Antioch. (Exs. 1, pp. 5.6-1, 5.6-9 – 5.6-15, p. 13; 300, p. 4.3-6.)

Three areas proposed for dirt stockpile are north of the proposed plant site, on the DuPont site. DuPont intends to use the excess dirt for the planned implementation of the DuPont Oakley Specific Plan. (Ex. 300, p. 4.3-6.)

2. Environmental Setting

The OGS is located in the Sacramento-San Joaquin River Delta area, in the western portion of California's Central Valley. Prehistoric resources uncovered in this area show signs of Central Valley and San Francisco Bay cultures. Several chronological sequences have been devised to trace the development of Central Valley and San Francisco Bay cultures and economies over time. These sequences are primarily based on cultural identity as evidenced by the persistence or replacement of material characteristics such as burial customs and artifact types. (Exs. 1, pp. 5.3-2 – 5.3-3; 300, p. 4.3-7.)

The evidence describes four patterns that span the period from 12,000 to 250 years ago: Paleo-Indian Pattern (12,000 to 5,000 years ago), Windmiller Pattern (ca. 3000 B.C. to 500 B.C.), Berkeley Pattern (ca. 500 B.C. to A.D. 500), and Augustine Pattern (ca A.D. 500 to A.D. 1800).

The artifact assemblage representative of the Paleo-Indian Pattern indicates very small, mobile populations dependent on hunting large animals. The artifact assemblage characteristic of the Windmilller Period includes flaked stone, ground stone, baked clay, and shell items that indicate diverse subsistence resources, including materials acquired through trade from distant geographical areas. With some exceptions, the burial patterns of cemeteries and graves consist almost entirely of ventrally extended interments with heads facing west.

The Berkeley Pattern represents a gradual and significant change in economic interest and material culture. Reliance on acorns as a subsistence food increased dramatically as shown by the increased number of recovered mortars and pestles. Examples of material culture included bone tool kits, unusual knapping techniques, and shell beads and pendants.

The Augustine Pattern reflects a continued dependence on acorns for subsistence and an increased reliance on hunting, fishing, and gathering. Extensive trade networks appear to have been developed to support growing populations.

a. Ethnographic Background

The Bay Miwok are associated with the project area. They occupied the eastern portion of Contra Costa County, from Walnut Creek eastward to the Sacramento-San Joaquin Delta.

According to the evidence, ethnographic data on the Bay Miwok is scarce, partially due to the early removal of this group from their land by the Spanish missionaries. However, based on what is known, a typical settlement within the Bay Miwok territory would be situated on a natural high spot along a major river or stream and could include a brush shelter, sweat houses, acorn granaries, a dance house, and earth-covered dwellings. The primary sustenance activities of the Miwok were hunting, fishing, and the gathering of wild plants. Typical foods included acorns, nuts, wild fruits and berries, various seeds, roots, and bulbs. The social and political structures of the Bay Miwok are briefly summarized by the evidence. (Ex. 300, pp. 4.3-7 – 4.3-8.)

b. Historic Background

Transportation, irrigation, and agriculture define California's Central Valley. The region experienced great change during the American Period, which spanned from 1848 to the present. The area around Oakley and Antioch was largely unsettled until the late nineteenth and early twentieth centuries, when European and Chinese immigrants occupied portions of the Delta and associated waterways and planted orchards and vineyards. Over time, the area became one of the most productive farming sections of Contra Costa County.

Railroads began traversing the region in the late 1800s, and the Atchison, Topeka, and Santa Fe (ATSF) Railroad was completed by 1878. The San Francisco and New Orleans line of the Southern Pacific Railroad (SPRR) was completed through the area in 1899, and several short rail lines ran south from Antioch to the coal mines. The rail and river routes facilitated the transport of goods in and out of the area.

Antioch was settled in 1849 on part of the original Rancho de Los Medanos (known locally as Smith's Landing). Antioch's early economy was influenced by the 1859 discovery of coal in the hills south of town and by the discovery of copper in 1863. Lumber companies and paper mills also contributed to the early economy.

Oakley was founded in 1897. The township deeded a right-of-way grant to the ATSF Railroad to construct a spur to the new town, erect a temporary shelter, and eventually build a permanent depot and freight buildings. A railroad station was added later benefitted local fruit and almond industries. The first passenger train ran from Oakley to Stockton in July 1900.

Agriculture was the primary economic influence in the region during the early twentieth century. Oakley continued to grow from the 1920s through 1940s, with the installation of street signs, dial telephones, natural gas and a sewer line. Refrigerated trucking became the primary method of transporting produce after World War II, after which the ATSF abandoned its spur track. The area continued to grow after World War II, remaining rural in character until the latter part of the twentieth century.

In 1955, the E. I. du Pont de Nemours and Company (DuPont) purchased 552 acres in Oakley for a freon manufacturing plant. As a major employer in the area, DuPont employed nearly 600 people during the plant's peak. The DuPont

plant closed in 1998. Oakley incorporated as a city 1999. (Exs. 1, p. 5.3-6; 300, pp. 4.3-9 – 4.3-10.)

3. Cultural Resources Inventory

The evidence explains that development of a cultural resources inventory entails working through a sequence of investigatory phases that involves: conducting background research to identify known cultural resources; conducting fieldwork to collect requisite primary data on not-yet-identified cultural resources; assessing the results of any geotechnical studies or environmental assessments completed for the proposed project site; and, making recommendations or determinations of historical significance for any identified cultural resources. The research methods and results for each investigatory phase were detailed in the record. (Ex. 300, pp. 4.3-10 – 4.3-14.)

An important step in the analysis was defining the project area of analysis (or "project area"), which, as discussed in this evaluation refers to a composite geographic area that accommodates the analysis of each type of cultural resource present in the area within and surrounding the OGS site, as well as all associated linear facility corridors.

For this project, Staff defined project areas of analysis for archaeological and built-environment resources as follows:

- For archaeological resources, the area of analysis is minimally defined as the project site footprint, plus a buffer of 200 feet, and the project linear facilities routes, plus 50 feet to either side of the routes.
- For built-environment resources, the area of analysis is minimally defined as one parcel deep from the project site footprint in urban areas, but in rural areas is expanded to include a 0.5-mile buffer from the project site, and from any aboveground linear facilities, to encompass resources whose setting could be adversely affected by industrial development. (Ex. 300, pp. 4.3-10-4.3-11.)[2]

The designated project area of analysis reflects the minimum standards set out in the Energy Commission Power Plant Site Certification Regulations and is sufficiently large and comprehensive in geographic area to facilitate and encompass considerations of both direct and indirect effects to archaeological,

[2] Neither the Applicant nor Staff identified ethnographic resources or a corresponding area of analysis. (Ex. 300, p. 4.3-11.)

ethnographic, and built-environment resources. (Cal. Code Regs., tit. 20, § 1701 et seq., Appen. B, subd. (g)(2).)

Records Searches. The Applicant's literature search and records review included the area encompassing a 1.0-mile buffer around the OGS plant site, laydown area, stock pile area, and a one-half mile buffer around the transmission line corridors.

The results of the Applicant's California Historical Records Information Search (CHRIS) records search revealed that:

- Eight previous cultural resources studies have been prepared within the plant site, laydown area, and linear facilities. An additional 30 studies have been prepared within one mile of the plant site and laydown area, and one-half mile of the linear facilities. The eight surveys in the project area include an archaeological reconnaissance for a Highway 4 widening project; an archaeological resource inventory for water conveyance features; a historic resource survey of the Burlington Northern Santa Fe (BNSF) Railway; a cultural resources inventory of the Trembath and Oakley Floodwater Control Basins; and an archaeological survey of a cogeneration project in Antioch. (Exs. 1, p. 5.3-8; 300, p. 4.3-12.)
- One resource (P-07-2614, an archaeological site) was previously recorded within the project buffer area, south of the BNSF tracks. This site has both prehistoric and historic elements. This resource is located 200 feet away from and outside of the project site and has been heavily disturbed by agricultural activity. The project is not likely to have any impact on this resource. (Exs. 1, pp. 5.3-9 – 5.3-10, 5.3-16; 300, p. 4.3-12.)
- The BNSF Railway (formerly the ATSF) runs adjacent to the OGS site and is included in the 200 foot project buffer area. Another segment of the railway in Contra Costa County was previously recorded as resource CA-CCO-732. (Ex. 300, p. 4.3-12.)

No additional archaeological, ethnographic, or architectural resources were identified through the literature search.

Archival and Library Research. The Applicant's consultant reviewed aerial photographs obtained from Environmental Data Resources (EDR) for nine specified years and historic maps for 11 specified years. The consultant used these resources determine whether any footings from the the DuPont facility are more than 45 years old. (Exs. 1, p. 5.3-7; 300, p. 4.3-12.)

Consultations. Both the Applicant and Staff undertook outreach and consultation with local agencies and organizations and Native American representatives. The evidence indicates these efforts yielded little information. In particular, the Native American Heritage Commission Sacred Lands file did not indicate the presence of Native American traditional cultural properties or cultural resources within the project area. Contacts made with Native American organizations resulted in their requests for data and to be kept apprised of project findings. A representative of the Ohlone Indian Tribe asked for the presence of a Native American monitor whenever an archaeological monitor is present on the site. (Ex. 300, pp. 4.3-13 – 4.3-14.)

Pedestrian Archaeology Survey. **Cultural Resources Figure 1** below shows the areas surveyed by the Applicant's consultant.

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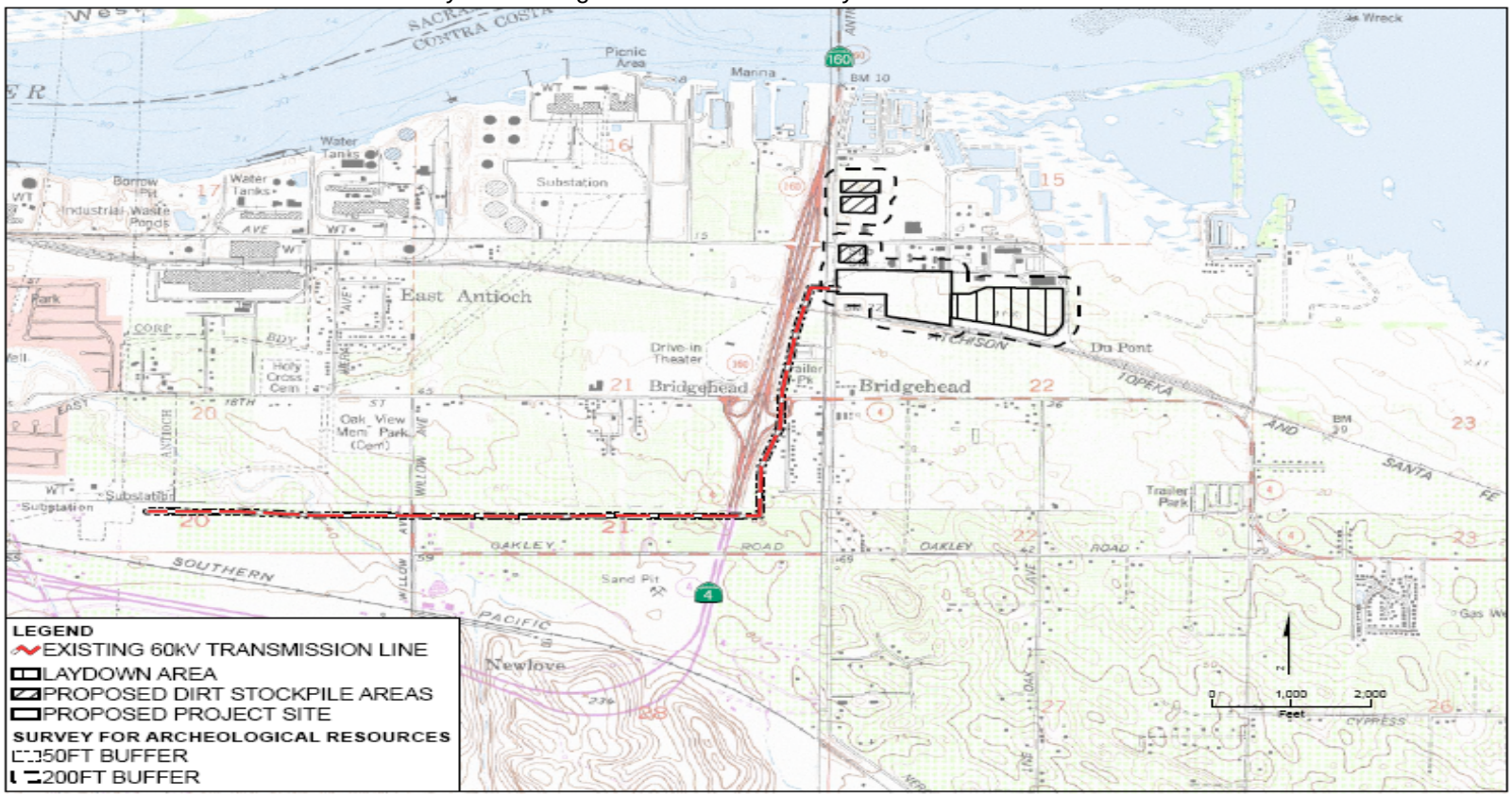
Cultural Resources – Figure 1

Oakley Generating Station – Areas Surveyed for Cultural Resources



This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE 5.3-1
AREAS SURVEYED FOR CULTURAL RESOURCES
CONTRA COSTA GENERATING STATION
OAKLEY, CALIFORNIA

Source: Ex. 1, AFC

The Applicant's field survey included the plant site, laydown area, stockpile areas and a 200-foot buffer was around these facilities. The survey also included the transmission route and a surrounding 50-foot buffer. The survey included the route for the sanitary sewer force main. There was no evidence of cultural materials within the non-buffer areas. (Exs. 1, p. 5.3-10; 32, pp. 2-7 - 2-8; 300, p. 4.3-13.)

The site and laydown areas are heavily disturbed. The southernmost stockpile area is an existing, paved parking lot; the second area is located further north in an open grassy field; and the third area (the north most pile) is in an old agricultural field. The transmissions line corridor crosses paved roads, freeway entrances and exits, vineyards, residential yards, and parking lots. The corridor is disturbed by existing transmission towers. (Ex. 1, pp. 5.3-14 - 5.3-15.)

However, the buffer area between the site and laydown led to identification of the following resources: an approximately 0.5-mile-long segment of the BNSF Railroad (formerly the ATSF railroad) and a spur line that runs north from the segment into the former DuPont facility, and a BNSF trestle constructed in 1926, and a previously recorded resource identified as P-07-002614 (discussed above).

The rail segment was part of the ATSF route completed in 1899 and the spur line was added in the 1950s. The railroad trestle bridge associated with the BNSF railroad crosses over Bridgehead Road. The bridge consists of two monumental cast-in-place concrete abutments and steel I-beam construction. It is approximately 50-feet long and 25-feet wide, and is suspended approximately 15-feet above the roadway. According to the information provided, the bridge was likely constructed in 1926 and may be associated with the construction of Bridgehead Road and the Antioch Bridge. (Exs. 1, p. 5.3-15; 11, p. 2-7 – 2-8; 300, pp. 4.3-14 - 4.3-15.)

Resource P-07-002614 consists of prehistoric and historic components. The prehistoric component includes two cores and one flake tool. The historic component comprises a small scatter of trash, including glass fragments and ceramic dish fragments. (Ex. 1, p. 5.3-16.)

The Applicant's consultant concluded that the overall archaeological sensitivity of the area is moderate due the local topography, the proximity to the San Joaquin River, and the scale and scope of previous ground disturbance. The consultant also concluded that the sensitivity of the underlying soils is moderate, as some

possibility exists for intact cultural deposits beneath the areas disturbed by agricultural activities. (Exs. 1, p. 5.3-16; 300, p. 4.13-15.)

Windshield Survey for Built-Environment Resources. The Applicant's consultant also undertook a survey of the built environment resources in the project area of analysis. The consultant reviewed historic aerial photographs, United States Geological Survey (USGS) topographical maps, and Contra Costa County Assessor records to determine dates of construction for buildings and to document the evolution of development in the project area. (Ex. 1, pp. 5.3-16 – 5.3-18.)

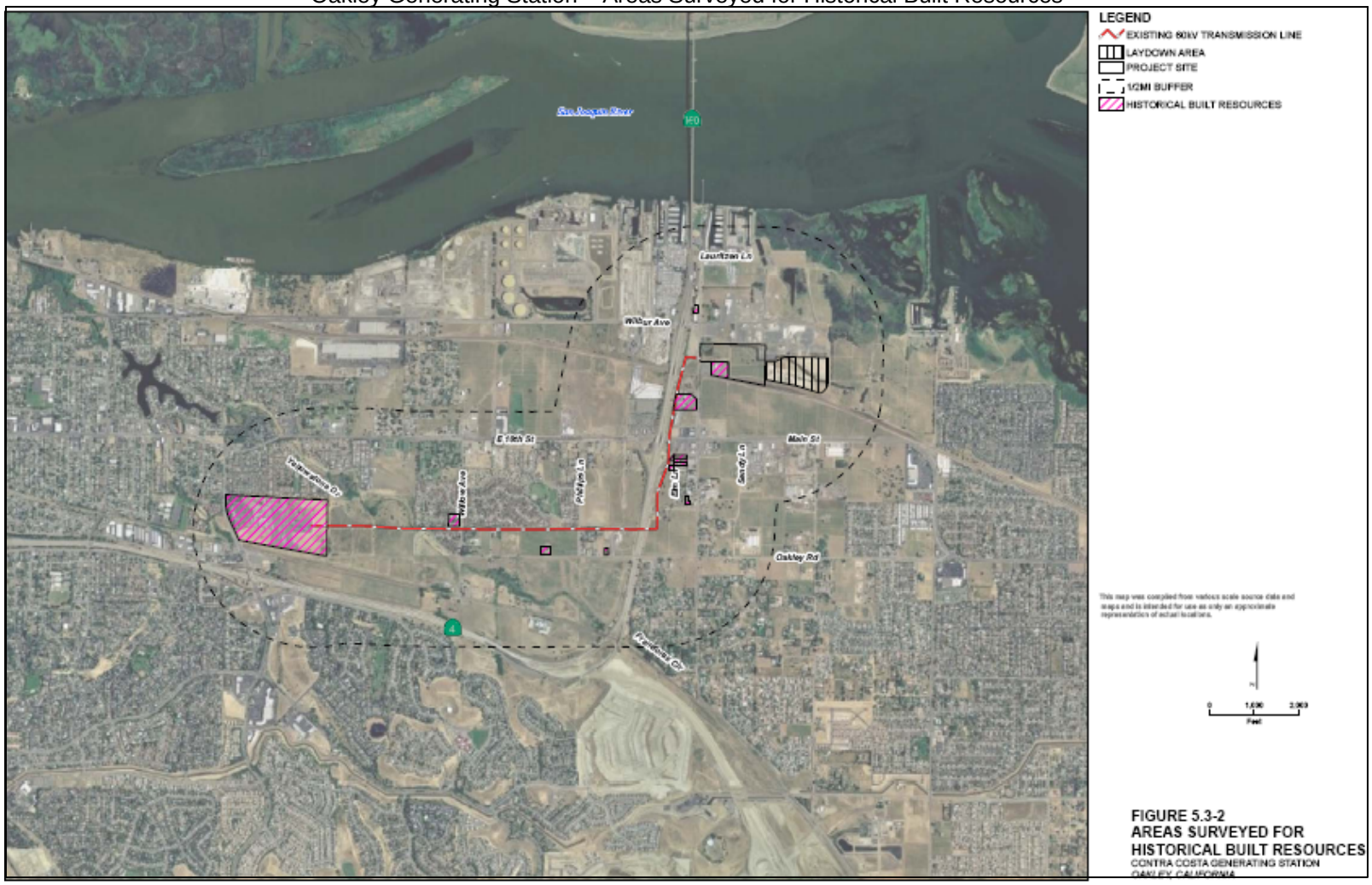
According to the evidence, development in the project area was sparse and primarily agricultural until the early 1970s. Between 1953 and 1968, roads were paved and more buildings were constructed. The DuPont plant was opened in 1956. The evidence summarizes the nature and pattern of development in the region. (Exs. 1, pp. 5.3-17 – 5.3-19; 300, p. 4.3-15.)

The Applicant's built-environment survey examined the plant site, transmission corridor, and built resources within one parcel's distance of the OGS site and above-ground linear facilities within those parcels immediately adjoining the project parcel boundaries and the routes of the aboveground linear facilities. The survey area reflects a combination of early and mid-twentieth century properties, late twentieth-century planned housing development, a utility substation and transmission line corridors, industrial and commercial buildings, and two transportation corridors. (Exs. 1, pp. 5.3-17 - 5.3-18; 300, pp. 4.3-15 – 4.3-17.)

Cultural Resources Figure 2 below shows the area surveyed by the Applicant for historical built resources.

Cultural Resource – Figure 2

Oakley Generating Station – Areas Surveyed for Historical Built Resources



Source: Ex. 1, AFC

The survey identified 16 built environment resources in the project area of analysis. They include 10 residential structures and four commercial/industrial buildings dating back to approximately 1965 and earlier, and the previously discussed BNSF railroad segment, spur, and trestle.

The four identified commercial/industrial facilities are:

- The PG&E Antioch Gas Terminal - This building, located at 5900 Bridgehead Road, was constructed about 1952 and serves as the center for natural gas transmission in the area. It is a one-story concrete block, rectangular building with a flat roof that cantilevers out beyond the face of the building. Several other one-story concrete buildings are located on the site. (Ex. 300, pp. 4.3-16 - 4.3-18, 4.3-22.)
- DuPont Oakley Plant - This facility, located at 6000 Bridgehead Road, was constructed between 1955 and 1956 as a Freon manufacturing plant. Of the more than 40 buildings and structures that existed during the plant's operation, the administration building, gate house, water storage tank, fire pump house and purchased power substation (all circa 1958) are still extant, along with a pipe plant building, RCRA building, flammable drum storage, the security, personnel orientation, emergency response/Terp building, Freon warehouse, DAP warehouse, and two additional unnamed buildings, all constructed after 1965. Only the administration building and gate house remain in use. (Exs. 11, pp. 1–2, 5; 300, pp. 4.3-16 – 4.3-118, 4.3-22 - 4.3-23.)
- Building at 6113 Bridgehead Road - This small one-story, vacant commercial structure was constructed in 1961. The building, once surrounded by agricultural fields, is now surrounded by pavement. SR 160 runs behind the building, slightly obscured by a raised embankment and mature eucalyptus trees. (Ex. 300, pp. 4.3-17 - 4.3-18, 4.3-22.)
- Contra Costa Substation - This facility was constructed sometime between the late 1940s and early 1950s. While the construction history of the property is not known, it appears to include approximately twenty structures, a large parking lot, and outdoor equipment storage on the western half of the site, and large electrical transmission equipment on the eastern half of the site. (Ex. 300, pp. 4.3-17 - 4.3-18, 4.3-22.)

4. CRHR Eligibility Evaluations

The evidence summarizes the Applicant's and Staff's CRHR-eligibility evaluations of the identified resources and establishes that none are eligible under any of the above-described criteria. (Exs. 1, p. 5.3-21; 300, pp. 4.3-23 – 4.3-24.) The grounds for deeming these resources as ineligible are summarized below.

a. BNSF Railroad Segment and Spur/CA-CCO-732

The line has been entirely upgraded with features that include modern crossings, new ballast, and upgraded rail lines and ties. The grade has also been modified to accommodate heavier loads on the tracks. These upgrades appear to make the line segment and the spur leading to the DuPont facility ineligible for listing on the NRHP as neither retains integrity of materials and workmanship. Further, there is no evidence that the AT&SF segment or spur are associated with events that have made a significant contribution to the broad patterns of our history or associated with the lives of persons significant in our past (CRHR Criteria 1 and 2); embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values (Criterion 3), has yielded, or are likely to yield, information important to history or prehistory (Criterion 4). (Exs. 1, pp. 5.3-15 – 5.3-18; 300, pp. 4.3-20 – 4.3-21.)

b. Railroad Trestle

The evidence indicates that although the abutments and I-beam construction of the trestle appear to be original; the rail bed, ballast, ties, and rails have been replaced over time. (Exs. 32, pp. 2-7 - 2-8; 300, p. 4.3-21.) Therefore, like the railroad segment and spur discussed above, the trestle fails to satisfy NRHP or CRHR eligibility criteria.

c. Residential Buildings

As described above, the residential buildings in the project area of analysis are predominantly post-World War II construction and appear to be 45 years old or older. The residences are located along the existing transmission line corridor. The disturbed transmission corridor includes existing steel lattice towers that have already adversely impacted the integrity and feeling of the structures within the project area of analysis. The evidence shows that all of the residential

structures were modified since their construction, and none are identified as noteworthy examples of their respective architectural types. Thus, none of the properties appear to meet NRHP or CRHR eligibility criteria. (Exs. 1, pp. 5.3-18 – 5.3-19; 300, pp. 4.3-16, 4.3-21 – 4.3-22.)

d. Building at 6113 Bridgehead Road

The building was once surrounded by agricultural fields and is now surrounded by pavement. And, the setting of this building appears to have been substantially altered over time, including the construction of the highway and surrounding development. Thus, the building does not satisfy CRHR Criteria 1, 2 or 3 and is not the type of resource that would be eligible under Criterion 4. (Ex. 300, p. 4.3-22.)

e. Antioch Gas Terminal

The Antioch Gas Terminal, located at 5900 Bridgehead Road, was constructed about 1952 and serves as the center for natural gas transmission. It is a one-story concrete block, rectangular building with a flat roof that cantilevers out beyond the face of the building. According to the evidence, the building does not appear to meet CRHR Criteria 1, 2 or 3 and is not the type of resource that would be eligible under Criterion 4. (Ex. 300, p. 4.3-22.)

f. Contra Costa Substation

The Contra Costa Substation was constructed in the late 1940s or early 1950s, likely coinciding with the construction of the Contra Costa Power Station at Marsh Landing. While the construction history of the property is not known, based on Staff's site visit and satellite images on Google Earth it appears to include approximately twenty structures, a large parking lot, and outdoor equipment storage on the western half of the site, and large electrical transmission equipment on the eastern half. The complex does not appear to meet CRHR Criteria 1, 2 or 3 and is not the type of resource that would be eligible under Criterion 4. Staff recommends that the Contra Costa Substation is not eligible for listing on the CRHR. Nor does the substation eligible for consideration as a historical resource pursuant to CEQA. (Ex. 300, p. 4.3-22.)

g. DuPont Oakley plant (also known as DuPont Antioch Works)

Staff asked the Applicant evaluate this resource for its potential eligibility as a historic district for the California Register of Historical Resources. As detailed by the evidence, the site is not eligible for the CRHR within the context of the development of the local and regional economy of Antioch and/or Oakley (Criterion 1). The site is not associated with a person or persons important to local, California or national history (Criterion 2), and, while the administration building and gate house display elements of the International style, they do not display distinctive characteristics of a type, period, region or method of construction (Criterion 3). And, according to the evidence, the site does not retain sufficient integrity from the identified period of significance (1955-1981) to convey the period's significance. Furthermore, although the plant retains integrity of location and some integrity of setting, the majority of buildings and structures have been removed from the site, altering the setting, and leading to the loss of integrity of design, materials, workmanship, feeling and association. (Exs. 11; 300, pp. 4.3-22 – 4.3-23.)

5. Potential Direct and Indirect Impacts

Direct impacts to cultural resources are those impacts associated with project development, construction, and co-existence. For instance, because construction usually entails surface and subsurface disturbance of the ground, direct impacts to archaeological resources could result from the immediate disturbance of the deposits from activities such as vegetation removal, vehicle travel over the ground, earth-moving activities, excavation, or demolition of overlying structures.

Construction can also have direct impacts on historic built-environment resources when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of nearby historic structures. And, direct impacts can result when new structures are stylistically incompatible with their neighbors and the setting or they produce emissions or vibrations harmful to the materials or structural integrity of the historic structures.

Indirect impacts to archaeological resources are generally those that could result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project construction causes obsolescence and demolition or creates improved accessibility, making vandalism or greater weather exposure possible. (*Id.*)

a. Construction

The proposed OGS ground disturbing activities include site grading; hauling and storage of equipment, materials, and supplies; installation of fencing; construction of an access road, trenching for pipelines; and excavation of pads and foundations for project equipment. According the evidence, the depth of ground disturbance would vary by proposed project activity. Ground disturbance on the proposed plant site could be as deep as 50 feet in areas where pile-supported foundations are used, but would generally be between 12 and 15 feet. The unpaved portions of the proposed construction laydown areas could be disturbed up to seven feet in depth, and the stockpile areas up to one foot.

The transmission line towers, which include 16-square-foot concrete foundations, will cause 30-feet of disturbance at each location. Construction of the new transmission line involves the staging conductor pulling and tensioning equipment at each end of the line, in previously disturbed areas. These activities can cause disturbance up to one foot in the transmission corridor laydown areas. (Ex. 300, pp. 4.3-6 - 4.3-7, 4.3-25.)

Built-Environment Resources. There are no known CRHR-eligible built-environment resources in the project area or study buffer areas. Therefore, the OGS Project will have no significant direct or indirect impacts on these resources. (Ex. 300, p. 4.3-25.)

Archaeological Resources. There are no known significant archaeological resources that would be adversely impacted – directly or indirectly - by the proposed project. However, because of the possibility that subsurface prehistoric and historic-period archaeological deposits could be encountered during construction, CEQA directs us (as lead agency) to address mitigation for archaeological resources that might be unexpectedly encountered during construction. (PRC § 21083.2; CEQA Guidelines, §§ 15064.5(f) and 15126.4(b); Ex. 300, p. 4.3-26.)

The Applicant proposed several measures in this regard, including the following:

- retaining a designated Cultural Resource Specialist (CRS) and Cultural Resources Monitor (CRM) who will be available during the entire construction period to evaluate any unanticipated discoveries;
- designing and implementing a worker education program for all personnel who have the potential to encounter and alter archaeological sites, historical resources, or properties that may be eligible for the CRHR;

- preparing and implementing a construction monitoring and unanticipated cultural resources discovery plan; and
- ensuring that impacts to cultural resources related to the unanticipated discovery of human remains are treated in accordance with state law as detailed in the most current versions of Public Resources Code sections 5097.91 and 5097.98. (Ex. 1, pp. 5.3-21 – 5.3-22.)

Staff agreed with and incorporated many of the Applicant's recommendations into proposed Conditions of Certification to ensure that all impacts to cultural resources, including unanticipated finds, are mitigated to a less than significant level. (Ex. 300, pp. 4.3-31 - 4.3-42.) We find that the Applicant's proposed measures as expanded upon by Staff's proposed Conditions of Certification **CUL-1** through **CUL-7**, will ensure that all impacts to archaeological resources discovered during construction and related activities will be mitigated to less than significant levels.

CUL-1 requires a Cultural Resources Specialist (CRS) to be retained and available during all ground disturbing activities to evaluate any discovered buried resources and, if necessary, to conduct data recovery to mitigate for any unavoidable impacts. **CUL-2** requires the project owner to provide the CRS with all relevant cultural resources information and maps. **CUL-3** requires the CRS to submit a Cultural Resources Monitoring and Mitigation Plan (CRMMP) to the Energy Commission Compliance Project Manager (CPM) prior to the start of construction. **CUL-4** requires the CRS to submit to the CPM a final report on all cultural resources monitoring and mitigation activities that occurs on the OGS Project site, including linears. **CUL-5** requires the project owner to train workers to recognize cultural resources and instruct them on procedures to halt construction if cultural resources are discovered. **CUL-6** prescribes the monitoring requirements, by an archaeologist and, possibly, by a Native American for the identification of buried archaeological deposits. **CUL-7** requires the project owner to halt ground-disturbing activities in the area of an archaeological discovery and to fund data recovery, if the discovery is evaluated as CRHR-eligible.

We therefore adopt Conditions of Certification **CUL-1** through **CUL-7** to ensure that impacts to discovered resources are minimized to less than significant levels.

6. Operation Impacts

Normal operation of the OGS Project will not result in a potential impact to cultural resources in the area but if a leak should develop in the gas or water pipelines supplying the plant, repair of the buried utility line could require the excavation of a large hole. However, because any such excavation would involve previously disturbed soils and sediments, these repairs would not impact previously unknown subsurface archaeological resources.

If, during operation of the OGS, the project owner should plan any changes or additions entailing significant amounts of ground disturbance, the owner must first petition the Energy Commission to review the environmental impacts of those activities and received Commission approval of the plan. This petition process would require Energy Commission cultural resources staff to assess whether previously undisturbed sediments would be affected by the planned activities and, if so, recommend the application of existing conditions or devise new ones to mitigate any impacts to known or newly identified CRHR-eligible cultural resources. (Ex. 300, p. 4.3-28.)

Thus, based on the project as proposed and the evidence regarding potential impacts, we find that no direct or indirect impacts will result form the project. No mitigation is required.

7. Cumulative Impacts

A cumulative impact refers to a project's incremental effects considered over time and together with those of other nearby, past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the project. (Pub. Res. Code, § 21083; Cal. Code Regs., tit. 14, § 15064(h), 15065(a)(3), 15130, and 15355.)

Cumulative impacts to cultural resources in the OGS Project vicinity could occur if any other existing or proposed projects, in conjunction with the proposed OGS, had or would have impacts on cultural resources that, considered together, would be significant. The previous ground disturbance from prior projects and the ground disturbance related to the future construction of the OGS and other proposed projects in the vicinity could have a cumulatively considerable effect on subsurface archaeological deposits, both prehistoric and historic. (Ex. 300, p. 4.3-29.)

The Applicant identified pending residential and commercial projects in both Oakley and Antioch through April 2009. Of the 4,058 approved residential lots in Oakley, 1,369 building permits had been approved and 1,064 had received a final inspection. Many of these residential projects are subdivisions, including the 140-acre Emerson Property project which consists of 578 residential units and 23.74 acres of commercial uses. Two commercial projects were under construction and several others had either received or were seeking planning entitlements. The Applicant also noted the draft DuPont Specific Plan, which is intended to apply to the entire DuPont property, including the project site. This plan includes 15 acres of retail/commercial property, 34 acres of research and development/business park, and 77 acres of light industrial development, and 200 acres of open space. (Ex. 1, p. 5.6-16.)

The City of Antioch had 32 residential and 68 commercial projects pending as of February 2009. The residential projects included single family homes and a senior housing project. Commercial projects included medical facilities, banks, shopping centers, gas stations and cell phone towers. (Ex. 1, p. 5.6-21.)

The evidence indicates that the cumulative impact of these projects would not result in significant unmitigated adverse impacts. Further, proponents of future projects in the area could mitigate impacts to known, CRHR-eligible resources through avoidance or data recovery and could mitigate impacts to as-yet-undiscovered subsurface archaeological sites to less-than-significant levels by requiring archaeological monitoring protocols for ground disturbance through avoidance or data recovery. These are standard measures used to ensure compliance with Section 15064.5 of the State CEQA Guidelines and related provisions of the Public Resources Code. It is assumed that similar measures would be applied to other projects in the area as appropriate. Impacts to human remains can be mitigated by following the protocols established by state law in Public Resources Code section 5097.98. Thus, the OGS Project and the other identified projects in the vicinity are not expected to result in significant cumulative impacts to cultural resources. (Exs. 1, p. 5.3-21; 300, p. 4.3-29.)

As noted above, the OGS Project would not directly or indirectly impact any known historical resources. And, implementation of Conditions of Certification **CUL-1** through **CUL-7** would also reduce any potential OGS impacts to previously unknown subsurface cultural resource finds to less than significant levels. Regardless of impacts from other projects, the OGS Project is unlikely to result in impacts that would, either individually or cumulatively, contribute to a significant impact to cultural resources in the project vicinity. (Ex. 300, p. 4.3-29.)

8. Compliance with LORS

Cultural Resources Table 1 above identifies the applicable state and local LORS. The Applicant identified these same LORS and explained how project construction and operation will comply with each of them. (Ex. 1, pp. 5.3-34 - 5.3-40.) We find that with implementation of the Conditions of Certification, the project will comply with all applicable LORS.

Specifically, regarding local LORS compliance, the evidence establishes that the City of Oakley has two cultural-resource specific goals and related policies in its general plan. Goal 6.4 encourages preservation of cultural resources within the General Plan Are and is implemented by Policy 6.4.1, which requires developers to preserve areas that have identifiable and important archaeological or paleontological significance. There were no historical resources, archaeological or built environment, identified within the OGS Project area of analysis. However, Conditions of Certification **CUL-1** through **CUL-7** ensure that any unanticipated finds would be protected, consistent with all federal, state, and local LORS. Therefore, the project is consistent with General Plan Goal 6.4 and Policy 6.4.1 is not applicable to the OGS Project.

The City of Antioch General Plan contains one cultural resource-specific objective, which requires developers to preserve archaeological, paleontological, and historic resources within the Antioch Planning Area for the benefit and education of future residents. Policies implementing this objective identify specific requirements to analyze and mitigate any project-related significant adverse impacts to cultural resources, including unanticipated finds. Implementation of Conditions of Certification **CUL-1** through **CUL-7** would ensure the project is consistent with this City of Antioch General Plan objective and applicable policies by requiring specific actions by the project owner that are equal to or greater in scope that those required by the General Plan and its related policies. (Ex. 300, p. 4.3-30.)

9. Agency and Public Comments

The City of Oakley commented that OGS Project would be required to provide a right-of-way dedication and frontage improvements to Bridgehead Road, west of and adjacent to the project site, sometime in the future pursuant to a deferred improvement agreement. This is in accord the City General Plan Circulation Element goal for Bridgehead Road to be a major arterial route. Because the

evidence shows that Bridgehead Road is within the cultural resources 200-foot survey buffer area and directly relates to the cultural resources analysis, Staff responded to the City's comment.

As explained by Staff and shown by the evidence, the Applicant surveyed this area for cultural resources. No cultural resources were identified in this area. Moreover, archaeological sensitivity in the area is considered moderate, due to the site's proximity to the San Joaquin River, the local topography and previous ground disturbance. Nonetheless, Staff anticipates the City would impose feasible mitigation measures on the Applicant's performance of frontage improvements to address possible unknown cultural resources. The measures might include requiring the project owner to perform an archaeological survey, engage in construction monitoring, avoid discovered archaeological sites, and engage in data recovery activities if avoidance is not possible.

We concur with Staff's determination that these mitigation measures should be effective in reducing to less than significant any impacts to significant cultural resources because they are proven methods, easily employed, and widely accepted measures in cultural resources management practice. And, because the proposed widening of Bridgehead Road from a two-lane rural road to a four-lane arterial was evaluated by the City's General Plan Circulation Element and the accompanying General Plan EIR, any potential impacts to cultural resources from the improvements to Bridgehead Road could be reduced to less than significant through implementation of appropriate impact avoidance and minimization measures prior and future evaluation by the City. (Ex. 300, pp. 4.3-28 - 4.3-29.)

FINDINGS OF FACT

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

1. The initial records search identified one resource (P-07-002614) within the project buffer area that had been previously recorded. This site has both prehistoric and historic elements. This site is outside of the project boundaries and is not likely to be impacted by the OGS.

2. The Sacred Lands file did not indicate the presence of Native American traditional cultural properties or cultural resources within the project area.

3. Sixteen built-environment resources were identified. None are eligible for National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) listing.

4. The project will have no impact on known CRHR-eligible archaeological resources, ethnographic resources, individual built-environment resources, or historic districts.

5. Conditions of Certification **CUL-1** through **CUL-7** will mitigate potential impacts to buried archaeological resources that could be discovered during the construction of the proposed OGS. The Conditions also provide for identification of and appropriate treatment for as-yet-unidentified CRHR-eligible archaeological resources encountered during construction.

6. The project will not result in any direct or indirect impacts on cultural resources.

7. The incremental effects on cultural resources of the OGS Project will not be cumulatively considerable when viewed in conjunction with other projects.

CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification below, the OGS Project will conform to all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portion of **Appendix A** of this Decision.
2. Through implementation of the Conditions of Certification below, the project will have no significant environmental impacts.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of construction-related ground disturbance (includes “preconstruction site mobilization,” “ground disturbance,” and “construction grading, boring and trenching,” as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternate CRSs (at the project owner’s option). The project owner shall submit the résumés and qualifications for the CRS, CRS alternates, and all technical specialists to the CPM for review and approval.

The CRS shall manage all monitoring, mitigation, curation, and reporting activities required in accordance with the Conditions of Certification (Conditions). The CRS may elect to obtain the services

of Cultural Resources Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner. No construction-related ground disturbance shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM.

Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other Energy Commission projects. After all ground disturbance is completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, if the CPM approves. With the discharge of the CRS, these cultural resources conditions no longer apply to the activities of this power plant.

CULTURAL RESOURCES SPECIALIST

The résumés for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). In addition, the CRS shall have the following qualifications:

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

At least three years of archaeological or historical, as appropriate (per nature of predominant cultural resources on the project site), resource mitigation and field experience in California; and

At least one year of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

The résumés of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects and demonstrate to the satisfaction of the CPM that the CRS/alternate CRS has the appropriate training and experience to implement effectively the Conditions.

CULTURAL RESOURCES MONITORS

CRMs shall have the following qualifications:

- a B.S. or B.A. degree in anthropology, archaeology, historical archaeology or a related field and one year experience monitoring in California; or
- an A.S. or A.A. degree in anthropology, archaeology, historical archaeology or a related field, and four years experience monitoring in California; or
- enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology or a related field, and two years of monitoring experience in California.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The résumé(s) of any additional technical specialist(s), e.g., historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

Verification: At least 45 days prior to the start of construction-related ground disturbance, the project owner shall submit the résumé for the CRS, and alternate CRS(s) if desired, to the CPM for review and approval.

At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the résumé of the proposed new CRS, if different from the alternate CRS, to the CPM for review and approval. At the same time, the project owner shall also provide the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project to the proposed new CRS. If there is no alternate CRS in place to conduct the duties of the CRS, a previously approved CRM may temporarily serve in place of a CRS for a maximum of three days. If cultural resources are discovered during the time, then construction-related ground disturbance shall halt and remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.

At least 20 days prior to construction-related ground disturbance, the CRS shall provide a letter to the CPM naming CRMs for the project and attesting that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition.

At least five days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to their qualifications.

At least 10 days prior to any technical specialists beginning tasks, the résumé(s) of the specialists shall be provided to the CPM for review and approval.

At least 10 days prior to the start of construction-related ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be

available for onsite work and is prepared to implement the cultural resources conditions.

CUL-2 Prior to the start of construction-related ground disturbance, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, confidential cultural resources reports, all supplements, the Energy Commission's Final Staff Assessment (FSA), and the Final Decision, including all Conditions of Certification, for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No construction-related ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until construction-related ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where construction-related ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification: At least 40 days prior to the start of construction-related ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, and the Energy Commission FSA to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

At least 15 days prior to the start of construction-related ground disturbance, if there are changes to any construction-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS and CPM.

At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS and CPM.

Weekly, during construction-related ground disturbance, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax.

Within five days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.

CUL-3 Prior to the start of construction-related ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each CRM, and the project owner's on-site construction manager. No construction-related ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM.

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

1. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. The Conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The **Cultural Resources** Conditions of Certification from the Commission Decision are contained in **Appendix A**."

2. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A mitigation plan shall be prepared for any CRHR-eligible (as determined by the CPM) resource, impacts to which cannot be avoided. A

prescriptive treatment plan may be included in the CRMMP for limited data types.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all construction-related tasks during the construction-related ground disturbance and post-construction-related ground–disturbance analysis phases of the project.

4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.

5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.

6. A description of all impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction-related ground disturbance, construction, and/or operation, and identification of areas where these measures are to be implemented. The description shall address how these measures would be implemented prior to the start of construction-related ground disturbance and how long they would be needed to protect the resources from construction-related effects.

7. A statement that all encountered cultural resources over 50 years old shall be recorded on Department of Parks and Recreation (DPR) 523 forms and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum.

8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.

9. A statement demonstrating when and how the project owner will comply with Health and Human Safety Code 7050.5(b) and Public Resources Code 5097.98(b) and (e).

10. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during construction-related ground disturbance and cannot be treated prescriptively.

11. A description of the contents and format of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

Verification: Upon approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.

At least 30 days prior to the start of construction-related ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.

At least 30 days prior to the start of construction-related ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery).

CUL-4 The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, DPR forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR.

If the project owner requests a suspension of construction-related ground disturbance and/or construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM for review and approval on the same day as the suspension/extension request. The draft CRR shall be retained at the project site in a secure facility until construction-related ground disturbance and/or construction résumés or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.

Verification: Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.

Within 90 days after completion of construction-related ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS,

then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.

Within 90 days after completion of construction-related ground disturbance (including landscaping), if cultural materials requiring curation were generated or collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, to accept cultural materials, if any, from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the Tribal Chairpersons of any Native American groups requesting copies of construction-related reports.

CUL-5 Prior to and for the duration of construction-related ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the cultural resources team, and may be presented in the form of a video. During the training and during construction, the CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when construction-related ground disturbance is completed or suspended, but must be resumed when construction-related ground disturbance, such as landscaping, resumes. The training shall include:

- A discussion of applicable laws and penalties under the law;
- Samples or visuals of artifacts that might be found in the project vicinity;
- A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
- A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;

- Instruction that the CRS, alternate CRS, and CRMs have the authority to halt construction-related ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;
- Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
- An informational brochure that identifies reporting procedures in the event of a discovery;
- An acknowledgement form signed by each worker indicating that they have received the training; and
- A sticker that shall be placed on hard hats indicating that environmental training has been completed.
- No construction-related ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification: At least 30 days prior to the beginning of construction-related ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval.

At least 15 days prior to the beginning of construction-related ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.

Monthly, until construction-related ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor full time all construction-related ground disturbance at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the previous paragraph, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than fifty feet from the location of active excavation, full-time archaeological

monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no further than fifty feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material.

A Native American monitor shall be obtained to monitor construction-related ground disturbance in areas where Native American artifacts are discovered, and written notification of discoveries of archaeological material of interest to Native Americans shall be sent to those Native Americans who requested to be notified of such discoveries. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow construction-related ground disturbance to proceed without a Native American monitor.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended.

The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

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

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

Verification: At least 30 days prior to the start of construction-related ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log.

Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.

At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.

Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM.

At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting.

No less than two days after the letter is sent, the CPM shall be copied on all of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information following the discovery of any Native American cultural materials. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.

Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

CUL-7 The project owner shall grant authority to halt construction-related ground disturbance to the CRS, alternate CRS, and the CRMs in the event of a discovery. Redirection of construction-related ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, construction-related ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. If the discovery includes human remains, the project owner shall comply with the requirements of Health and Human Safety Code 7050.5(b) and (c). Monitoring and daily reporting as provided in these conditions shall continue during the project's construction-related ground-disturbing activities elsewhere. The halting or redirection of construction-related ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM.
4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.

Verification: At least 30 days prior to the start of construction-related ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt construction-related ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.

Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery.

Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during construction-related ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.

D. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section of the Decision summarizes the record concerning the OGS Project's potential effects relating to geological and paleontological resources. Our evaluation in this subject area is guided by California Environmental Quality Act (CEQA) Guidelines, Appendix G, which establishes significance criteria evaluated in this assessment.

Under Appendix G, a project would have a significant environmental impact in terms of geologic hazards and resources if it would do any of the following:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    1. Rupture of a known earthquake fault (Alquist –Priolo Fault Zone).
    2. Strong seismic ground shaking.
    3. Seismic-related ground failure, including liquefaction.
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local plan, specific plan, or other land use plan. (CEQA Guidelines, Appendix G.)

More particularly, we evaluate whether project-related activities could result in exposure to geological hazards, as well as whether the facility can be designed and constructed to avoid any such hazard which could impair its proper functioning. These include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, tsunamis, and seiches.

We also assess whether the project will impact any geologic or mineralogical resources and examine whether fossilized remains or trace remnants of prehistoric plants or animals are likely to be present at the site and, if so, whether the project's potential impacts to these resources are adequately mitigated.

Our evaluation includes an assessment of the project's compliance with the applicable laws, ordinances, regulations, and standards (LORS). The LORS are

identified in **Appendix A** to this Decision and below under "Compliance with LORS."

The evidence on this topic was undisputed. (3/15/RT 67-77; Exs. 1, §§ 5.4, 5.8; 10 [Responses 34, 40], 32; 55; 300, §5.2, 407.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Description

The OGS site is located in Contra Costa County, California, along the boundary between the Coast Ranges and the Great Valley (also known as the Central Valley) physiographic provinces. The Coast Ranges extend about 600 miles from the Oregon border to the Santa Ynez River. The northern and southern Coast Ranges are separated by a depression containing San Francisco Bay.

The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata and are subparallel to the active San Andreas Fault. The OGS site is within the flat land between the floodplain of San Joaquin River to the north and Los Medanos Hills, located approximately 1.7 miles southwest of the project site. (Exs. 1, p. 5.4-1; 300, pp. 5.2-4 - 5.2-5.)

The Great Valley is approximately 400 miles long and 60 miles wide and bounded to the north by low-lying hills, to the northeast by the volcanic plateau of the Cascade Range; to the west by the Coast Ranges; to the east by the Sierra Nevada; and to the south by the Coast Ranges and the Tehachapi Mountains. The northern third of the Great Valley is known as the Sacramento Valley and the southern two-thirds are known as the San Joaquin Valley. (Ex. 300, p. 5.2-5.)

The project area surficial geology is comprised of Quaternary age beach and dune sand deposits of northeastern Contra Costa County, Holocene alluvial deposits and recent artificial fill, and later Tertiary sedimentary deposits in the southernmost portion of the two-mile radius surrounding the site. (Ex. 1, p. 5.4-2, Figure 5.4-1.) The evidence describing the results of the Applicant's and Staff's analyses (including the Applicant's preliminary geotechnical report), indicates that the subsurface of the site consists predominately of fine-grained, very well-sorted, well-drained surficial soils that are eolian deposits of the San Joaquin River, which is approximately 0.6 miles north of the site. The thickness of the sand deposits can be as much as 40 feet. The deposits are overlapped by peat

in some areas leaving isolated dune ridges. The dune sand deposit is generally underlain by alluvial deposits of the San Joaquin River.

In particular, loose to medium dense silty sand of varying thickness from 13 to 21 feet immediately underlies the OGS site. An approximately 4- to 12-foot-thick silty clay to clay soil layer is beneath this silty sand layer. The site's silty clay/ clay soils are moist to wet, stiff to very stiff, and contain low to high plasticity fines. The thickness of the silty clay/clay soils are followed by dense to very dense sand to the maximum depth of exploration of 100 feet below existing grade.

2. Geologic Hazards

The evidentiary record contains documentation of potential geologic hazards at the OGS site, including site-specific subsurface information. (Exs. 1, §§ 5.4; 300, 5.2-8 – 5.2-9.) The record shows that the Applicant prepared – and Staff reviewed – a preliminary geotechnical evaluation. This evaluation and further assessment by Staff indicate that ground shaking, liquefaction and associated lateral spreading, and dynamic compaction represent the main geologic hazards at the OGS site. The site soil class appears to be Site Class D to Site Class F. The potential for these hazards and appropriate mitigation to reduce their impacts to less than significant levels are discussed below. (Ex. 1, p. 5.4-2, Appendix 2G; 300, pp. 5.2-8 - 5.2-10.)

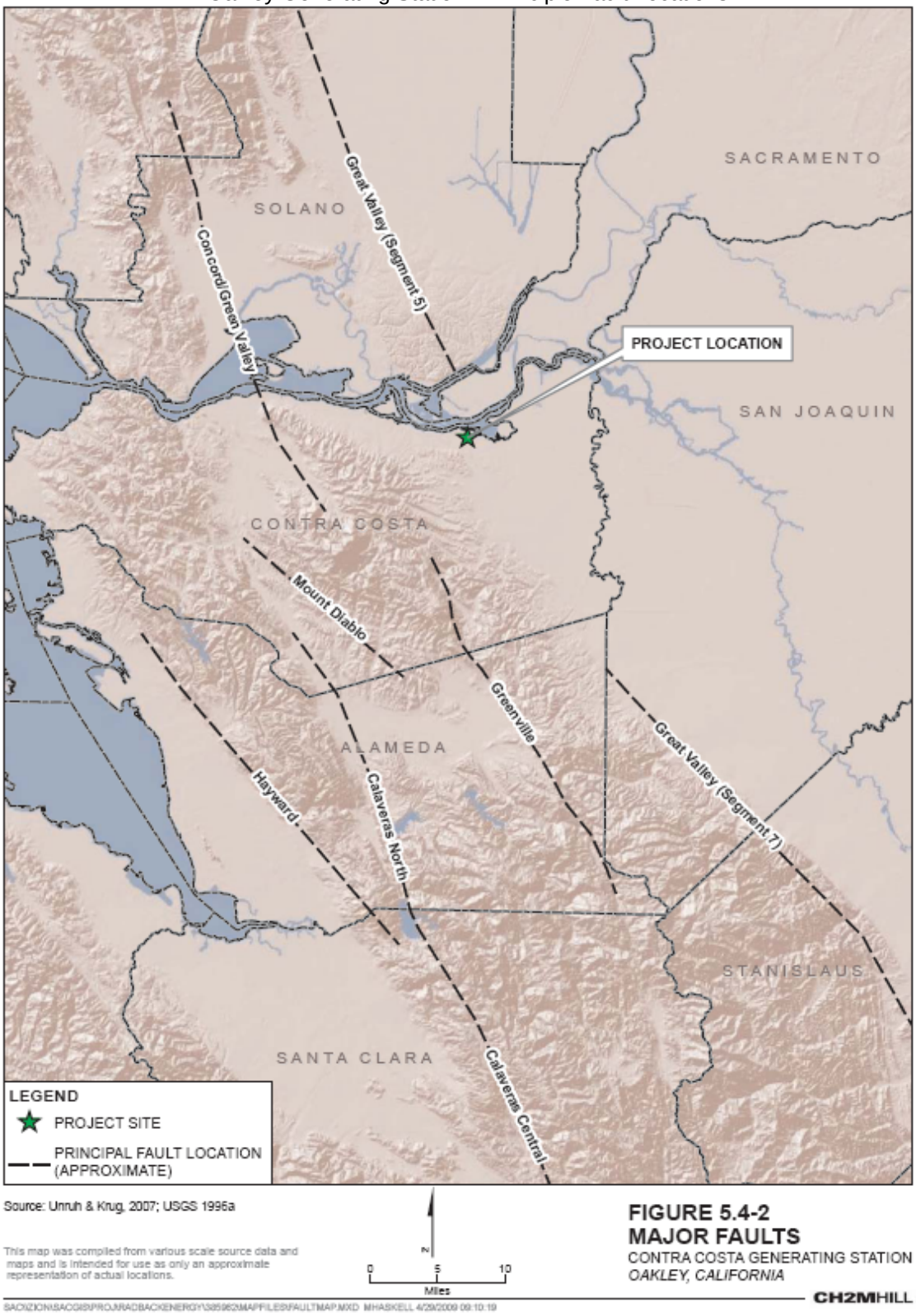
a. Faulting and Seismicity

The project area is characterized by moderate seismic activity, with potentially large-magnitude earthquakes. (Ex. 1, p. 5.4-2.) Sixteen Type A and 27 Type B faults were identified within 50 miles of the OGS site[1]. Principal faults within 25 miles of the OGC site are shown below in **Geological and Paleontological Resources Figure 1**.

[1] Type A faults have slip-rates of ≥5 millimeters (mm) per year and are capable of producing an earthquake of magnitude 7.0 or greater. Type B faults have slip-rates of 2 to 5 mm per year and are capable of producing an earthquake of magnitude 6.5 to 7.0. The fault type, potential magnitude, and distance from the site are summarized by Staff in Geology and Paleontology Table 2 of the Final Staff Assessment. (See Ex. 300, p. 5.2-6, 5.2-9.)

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES – FIGURE 1

Oakley Generating Station – Principle Fault Locations



Source: Unruh & Krug, 2007; USGS 1996a

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE 5.4-2
MAJOR FAULTS
CONTRA COSTA GENERATING STATION
OAKLEY, CALIFORNIA

CH2MHILL

SACXZKONISACGISIPROJRADBACKENERGY\385962MAPFILESIFAULTMAP.MXD MHASKELL 4/29/2009 09:10:19

Source: Exhibit 1

The nearest major active fault (or potentially active fault) is the Segment 5 of Great Valley Fault located approximately 4.3 miles northeast of the plant site. The next closest fault is the northern segment of Greenville, which is mapped as being 9.9 miles southwest of the site. The Mount Diablo Thrust fault is mapped approximately 10.9 miles southwest of the site. These are all Type B faults. (Ex. 300, pp. 5.2-6 [Table 2], 5.2-9- 5.2-10) The closest Type A fault - the Hayward Fault - is mapped at 28 miles southwest of the site. The San Andreas Fault, also Type A, is mapped about 46 miles southwest of OGS site.

According to the evidence, some of these faults are capable of generating maximum earthquake magnitudes of 6.3 to 7.7 and thereby represent potential significant seismic hazards to project site. However, because the OGS Project is not located within an Alquist-Priolo Special Studies Zone or within the trace of any known active fault, there is little likelihood of ground rupture or of the project causing direct human exposure to ground rupture. (Exs. 1, pp. 5.4-2, 5.4-7; 300, pp. 5.2-9 – 5.2-10.)

We find nonetheless, that seismic hazards will be minimized by the project's conformance with the recommended design criteria of the California Building Code (CBC) and the fact that the project's major structures will be designed to withstand the strong ground motion of a Design Basis Earthquake, as defined by the 2010 CBC. Implementation of **Facility Design** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** will ensure that the project owner complies with the requirements of the CBC and all applicable LORS and that the project is designed to reduce impacts associated with large seismic events (i.e., ground shaking).

GEN-1 requires the project owner to design, construct, and inspect the project in accordance with the latest edition of the California Building Standards Code, which encompasses California's Building Standards Administrative Code, Electrical Code, Mechanical Code, Plumbing Code, Energy Code, Fire Code, Code for Building Conservation, Reference Standard Code and additional engineering LORS. The project owner must ensure that these codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the OGS facility.

Under **GEN-5**, the project owner must assign specified registered engineers to be responsible for particular project segments the project both before the start of rough grading and before the start of construction. And, **CIVIL-1** requires the

project owner to submit the following documents for the Chief Building Official's (CBO) review and approval before site grading:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the project's responsible civil engineer; and
4. Soils, geotechnical, or foundations reports required by the latest edition of the CBC.

Thus, we find that proper design in accordance with **Facility Design** Condition of Certification **GEN-1**, as well as with requirements presented in the site-specific, design-level geotechnical evaluation, should adequately mitigate seismic hazards to the current standards of practice and ensure that project buildings and structures are designed with adequate strength to resist the effects of Design Earthquake Ground Motion, as defined by the California Building Code. (Ex. 300, p. 5.2-9.)

b. Liquefaction

Liquefaction is a condition in which a saturated cohesionless soil may lose shear strength because of a sudden increase in pore water pressure caused by an earthquake. The potential for liquefaction depends on the depth to water, grain size distribution, relative soil density, degree of saturation, and the intensity and duration of the earthquake.

As discussed above, the OGS site is predominately underlain by fine to coarse sand of various densities. A number of sources establish the the site has potential for liquefaction during an earthquake. For instance, the Applicant's preliminary geotechnical evaluation indicates that the site and linear alignment have some potential for liquefaction during a large earthquake. The U.S. Geological Survey has mapped data Quaternary geological units in the project area as having moderate potential for liquefaction. And, the Contra Costa County General Plan (2005) identifies the project area, including the areas for the project's off-site features, as having generally high potential for liquefaction. (Ex. 1 p. 5.4-7; 300, p. 5.2-10.)

However, as also established by the evidence, this potential liquefaction impact can be mitigated to a less than significant level with implementation of **Facility Design** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1**, discussed above.

c. Lateral Spreading

Lateral spreading of the ground surface can occur within liquefiable beds during seismic events. Lateral spreading generally requires an abrupt change in slope, such as a nearby steep hillside or deeply eroded stream bank, but can also occur on gentle slopes. Other factors such as distance from the epicenter, magnitude of the seismic event, and thickness and depth of liquefiable layers affect the amount of lateral spreading.

As shown by the evidence, the OGS site is underlain by liquefiable sand layers of considerable thickness. As a consequence, the potential for lateral spreading during seismic events at the project site and along the transmission route will be low to moderate. This potential will, however, be limited by the relatively flat site slopes, expected extensive evaluation resulting from the project owner's preparation of the CBC-required project-specific geotechnical report, and implementation of **Facility Design** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1**. Compliance with these requirements will ensure that the potential lateral spreading impacts will be reduced to a less than significant level. (Ex. 300, p. 5.2-10.)

d. Dynamic Compaction

Dynamic compaction of soils can occur when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state (an increase in soil density). In turn, the decrease in volume can result in settlement of overlying structural improvements.

Because the OGS site is underlain by loose to medium dense sand soils of dune sand origin, dynamic compaction of these materials during an earthquake is possible. (Ex. 300, pp. 5.2-10 – 5.2-11.) However, as shown by the evidence, the project owner's preparation of the California Building Code-required project-specific geotechnical report and implementation of **Facility Design** Conditions of Certification **GEN-1, GEN-5** and **CIVIL-1**, will ensure that dynamic compaction conditions are reduced to less-than-significant levels.

e. Other Geologic Hazards

The evidence also contains analyses of risk to the project from hydrocompaction, subsidence, expansive soils, landslide, flooding tsunamis, and volcanic hazards. As explained by the evidence, none of these geologic phenomena pose a significant risk to the OGS Project. (Ex. 300, pp. 5.2-11 – 5.2-12.)

Hydrocompaction is generally limited to young soils that were deposited rapidly in a saturated state, most commonly by a flash flood. The soils dry quickly, leaving an unconsolidated, low density deposit with a high percentage of voids. Foundations built on these types of compressible materials can settle excessively, particularly when landscaping irrigation dissolves the weak cementation that is preventing the immediate collapse of the soil structure. The geologic environment and geotechnical investigation of the OGS site suggests minimal hydrocollapse potential at the site.

No known regional subsidence problems exist in the OGS Project area. However, future changes in ground water pumping or development of hydrocarbon reserves in the Sacramento Valley could theoretically impact the site. If mass filling or large structure foundations will be incorporated at the site, recommendations for mitigating the effects of subsidence due to surcharge loading must be provided in the project-specific geotechnical report as required by the California Building Code and **Facility Design** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1**. When necessary, mitigation for mass filling is normally accomplished by pre-loading or waiting for primary consolidation to take place, and mitigation of heavily loaded foundations is typically accomplished by incorporating deep foundations to support significant loads.

Regarding soil expansion, the evidence shows that the site is underlain by non-plastic to low plasticity silty sand with non-expansive characteristics to13 feet or more below the existing grade. Low to high plasticity clay soils underlie the below-surface sand soils. However, based on the site topography, minimal site grading is expected at the site and it is unlikely that the plant structures will be immediately underlain by expansive clay soils. Further, according to the evidence, the United States Department of Agriculture has identified the surficial materials at the plant site as generally non-plastic sand soils that possess negligible shrink-swell potential. Therefore, the potential impact of expansive soils on the OGS site is negligible.

The site is not susceptible to landslide activity. The OGS site and planned linear alignments are in flat land areas with minimal or negligible slopes. The flat lying nature and the absence of topographically high ground within or immediately upgradient from the site suggest it is not susceptible to landslide activity.

As to flooding, the evidence shows that the Federal Emergency Management Agency (FEMA) has identified the OGS site and most of the offsite transmission line as lying in Zone X, or areas determined to be outside the 0.2 percent annual chance flood plain. A small portion of the transmission route near Viera Avenue, Antioch, California will lie within Zone AE, or special flood hazard areas with base flood elevation determined, approximately 25 to 30 feet above mean sea level. The potential impact of flooding on the OGS Project site and most of offsite improvements is negligible. If transmission towers are planned in the above mentioned small area subject to flood hazard, the elevation of the tower footing need to be established based on the base flood elevation.

Intervenor Sarvey introduced evidence suggesting that certain power plants in the San Francisco Bay Area are potentially vulnerable to sea rise impacts. This evidence does not encompass or discuss the the OGS site. In contrast, Staff evaluated the potential for sea rise incidents – such as tsunamis and seiches – in the region and at the OGS site in particular. Staff's evidence shows that the OGS site is located over 25 miles upriver from San Francisco Bay, over 45 miles from the Pacific Ocean coast line, and approximately 0.6 miles from the southern bank of San Joaquin River. Therefore, it appears that the potential impact to the OGS site due to sea rise is negligible. (Ex. 407.)

3. Geologic and Mineralogic Resources

The evidence establishes that no viable geologic or mineralogic resources are known to be present at the plant site and are not expected to be present along the project linears. (Exs. 1, pp. 5.4-8 – 5.4-9; 300, pp. 5.2-12 – 5.2-14.)

The OGS site and other off-site project features lie in Mineral Resource Zone (MRZ)-3, which is defined by the CDC as an area containing mineral deposits, the significance of which cannot be evaluated from available data. In addition, the project site and the offsite transmission route are located within an urbanized or urbanizing zone as identified by the Office of Planning and Research.

Areas with potentially significant mineralogical resources are located approximately 1.5 miles west and two miles southwest of the project site. This

area is designated by the CDC as a MRZ-2, which is defined as an area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. Three other areas designated as MRZ-2 with significant mineralogical resources are located approximately 10 to 11 miles from the site.

A sand or sand and gravel pit is located approximately 10 miles west of the site and three more crushed stone pits are located 11 to 13 miles southwest of the site. A former limestone pit, the Oil Canyon deposit, is located approximately 6.5 miles southwest of OGS site. The nearest active limestone pit, the Tolenas Springs deposit, is approximately 25 miles northwest of the plant site in the Solano County. Two Portland cement concrete (PCC) aggregate deposits with minimal aggregate availability (less than 0.5 million tons/year) are located approximately 8 miles north and 12 miles south of the site, respectively. As recently listed by the CDC, at least six active non-PCC grade sand and gravel pits, one specialty sand pit and one rock and stone pit, are located within 10 miles of OGS site. (Ex. 300, pp. 5.2-12 – 5.2-13.)

The OGS site is located in the Sacramento-San Joaquin sedimentary basin with viable oil, gas, or geothermal resources. At least 11 active or historic oil and gas fields are present in Contra Costa County. The River Break gas field of the Contra Costa County and the Sherman Island gas field of the Solano County are located approximately 1.4 miles southeast and 2.3 miles northeast of the site, respectively. The Rio Vista gas field with large exposure area is located approximately 5.4 miles north to northwest of the project site. The Brentwood oil field of Contra Costa County is located approximately 3.0 miles south of the site. Geothermal fields are present just north of the site along the bed of the San Joaquin River. A natural gas exploration well advanced approximately 3,000 feet northeast of the project site was dry and abandoned. At least five thermal springs or wells are also present in Contra Costa County. (Ex. 300, p. 5.2-13.)

Since the site and project linears are generally mapped as lying in MRZ-3; previous exploration at the project site did not reveal the presence of any significant amount of potential PCC aggregate deposits. Natural gas exploration in the vicinity of the project site did not encounter any such resources; and given the absence of rock outcrops on or near the site surface. Thus, the evidence indicates there is very low potential for this site to have economically viable geologic or mineralogic deposits. (*Id*.)

4. Paleontological Resources

This evidence summarizes the Applicant's resource inventory results as well as Staff review of the Applicant's paleontological resources assessment. Staff's evaluation included a searching the on-line records database maintained by the University of California, Museum of Paleontology. (Exs. 1, pp. 5.8-2 -5.8-5; 300, p. 5.2-13.) These analyses assist us in evaluating the project's site's paleontological sensitivity. [2]

The results of the Applicant's and Staff's investigations indicate that at least three paleontological localities have been documented within three miles of the OGS site in a northwesterly to southwesterly direction towards Mount Diablo. None are within one mile of the site. Quaternary alluvium deposits are also present at the OGS site and along the project linears; however, according to Staff, recent paleontological monitoring of the same geologic units have failed to yield scientifically significant fossil remains. In addition, because the upper 3- to 4-feet of existing materials on the project site has been previously disturbed during agricultural operations, the potential to encounter paleontological resources during construction of the OGS Project is low. (Exs. 1, p. 5.8-5; 300, pp. 5.2-13 – 5.2-14.)

If any such resources are encountered, potential impacts to such resources can be effectively mitigated through implementation of Conditions of Certification **PAL-1** through **PAL-7**. These conditions collectively require a worker education program in conjunction with the monitoring of earthwork activities by a qualified professional paleontologist (a paleontologic resource specialist or PRS). Earthwork would be halted any time potential fossils are recognized by either the paleontologist or the worker. A PRS would be retained, for the project by the Applicant to produce a monitoring and mitigation plan, conduct the worker training, and provide the monitoring. These conditions are designed to mitigate paleontological resource impacts to less than significant levels and ensure that once the facility is constructed, its operation will not have any adverse impact on geologic, mineralogic, or paleontologic resources.

[2] According to the Society of Vertebrate Paleontology's standard guidelines, sensitivity is comprised of: (1) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or paleobotanical remains, and (2) the importance of recovered evidence for a new and significant taxonomic, phylogenic, paloeecological, or stratigraphic data. (Ex. 1, p. 5.8-4.)

5. Compliance with LORS

Geological and Paleontological Resources Table 1 below identifies applicable LORS.

Geology and Paleontology Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	The proposed OGS is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State	
California Building Code (2010)	The CBC (2010) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control). The CBC has adopted provisions in the International Building Code (ICC 2006).
Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621–2630	Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. The project site is not located within a designated Alquist-Priolo Fault Zone.
The Seismic Hazards Mapping Act, PRC section 2690–2699	Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches.
PRC, Chapter 1.7, sections 5097.5 and 30244	The code regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.
Warren-Alquist Act, PRC, sections 25527 and 25550.5(i)	The Warren-Alquist Act requires the Energy Commission to "give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites…" With respect to paleontologic resources, the Energy Commission relies on guidelines from the Society for Vertebrate Paleontology (SVP), indicated below.
California Environmental Quality Act (CEQA), PRC sections 15000 et seq., Appendix G	Mandates that public and private entities identify the potential impacts on the environment during proposed activities. Appendix G outlines the requirements for compliance with CEQA and provides a definition of significant impacts on a fossil site.
Society for Vertebrate Paleontology (SVP), 1995	The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.

Geology and Paleontology Table 1 (cont.)
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Local	
California Building Code (2010)	These codes address the excavation, grading, and earthwork construction, not limited to construction relating to earthquake safety and seismic activity hazards.
Contra Costa County General Plan (2005) Section 9.7 Item 9-31 to 9-35	The section requires a general plan for long term development. Under this protection, paleontological resources shall be protected and preserved.
City of Oakley General Plan 2020 (2002) Section 6.4	Section states "There have been few archeological or paleontological finds in the City of Oakley. However, given the rich history of Plan Area, City will continue to require site evaluation prior to development of undeveloped areas, as well as required procedures if artifacts are unearthed during construction."

Our findings relating to the LORS are summarized below:

California Building Code. The project will comply with the recommended seismic design criteria of the 2010 California Building Code (or later edition if applicable), which specify acceptable design criteria for structures with respect to seismic design and load-bearing capacity. As discussed above, compliance with the 2010 CBC requirements will reduce the exposure of people to risks associated with large seismic events, liquefaction potential, and expansive soils to less than significant levels. (Ex. 1, pp. 5.4-9 - 5.4-10; 300, pp. 5.2-8 – 5.2-12, 5.2-14.)

Alquist-Priolo Earthquake Fault Zoning Act. This Act identifies areas subject to surface rupture from active faults and requires that all occupied structures be set back 50 feet or more from the surface trace of an active fault. The OGS Project is not located within an Alquist-Priolo Special Studies Zone or within the trace of any known active fault. As a result, setbacks from occupied structures are not required for this project. (Ex. 1, pp. 5.4-9 – 5.4-10; 300, p. 5.2-9.)

Seismic Mapping Hazards Act. This Act requires the identification identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking. As discussed above, the project soils are susceptible to impacts from strong ground shaking, liquefaction, and dynamic compaction. Implementation of **Facility Design** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** will reduce the impact to less than significant levels. (See, e.g., 300, pp. 5.2-8 – 5.2-12, 5.2-14 - 5.2-15.)

Contra Costa County General Plan. The Open Space element of the General Plan includes goals and policies regarding historic and cultural resources. While paleontological resources are not expressly reference in this section, we infer that they come within the section of these provisions as they can be reasonably characterized as important archaeological and historic resources. The General Plan seeks to protect these resources. As discussed above, the Applicant and Staff assessed the paleontological sensitivity of the project site and project area and we have adopted Conditions of Certification **PAL-1** through **PAL-7** to mitigate potential impacts to and encountered paleontological resources to less-than-significant levels. (Exs. 1, p. 5.8-10; 300, pp. 5.2-13 - 5.2-14.) Implementation of these conditions will ensure consistency with the Open Space element.

City of Oakley General Plan. The Open Space and Conservation element of the General Plan includes goals and policies to protect cultural resources, including known and potential archaeological and paleontological resources. Accordingly, the City requires site evaluation before development of undeveloped area and adherence to required procedures if artifacts are discovered during construction. (Ex. 1, pp. 5.8-10 – 5.8-11; 300, p. 5.2-4.) As discussed above, the Applicant and Staff assessed the paleontological sensitivity of the project site and project area and we have adopted Conditions of Certification **PAL-1** through **PAL-7** to mitigate potential impacts to and encountered paleontological resources to less-than-significant levels. (Exs. 1, p. 5.8-10; 300, pp. 5.2-13 - 5.2-14.) Implementation of these conditions will ensure consistency with the Open Space and Conservation element.

6. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (Cal. Code Regs., tit. 14, § 15065(a)(3).)

Potential cumulative effects, as they pertain to geologic hazards, are essentially limited to regional subsidence due to ground water withdrawal. As more fully discussed in the **Soil and Water Resources** section of this Decision, the OGS

Project will not involve pumping of large volumes of ground water. Therefore, it will not contribute to any increase of this potential hazard.

No viable geologic resources have been identified in the vicinity of the project site. And, even though significant paleontological resources have been identified within close proximity to the proposed project site and its linears, the evidence shows a low likelihood of encountering paleontologic resources during project construction. (Ex. 300, pp. 5.2-15 – 5.2-16.) Any potential impacts to paleontological resources due to construction activities would be mitigated to less-than-significant levels with implementation of Conditions of Certification **PAL-1** through **PAL-7**.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The project is located in Contra Costa County, California, along the boundary between the Coast Ranges and the Great Valley physiographic provinces.

2. Ground shaking, potentially liquefiable soils and associated lateral spreading, and dynamic compaction are the primary geologic hazards that could affect the OGS Project.

3. The evidentiary record contains a preliminary geotechnical evaluation prepared for the OGS plant. The project owner will prepare a more extensive evaluation as required by the California Building Code and set forth in **Facility Design** Condition of Certification **GEN-1.**

4. Potential geologic hazards to the project are effectively mitigated by standard engineering design measures as specified in Conditions **GEN-1, GEN-5,** and **CIVIL-1** of the **Facility Design** section of this Decision.

5. Dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, flooding, tsunamis, and seiches pose low or negligible project risks.

6. The OGS site is located within an established Mineral Resource Zone (MRZ) – 3 , but no economically viable mineral deposits are known to be present at the site

7. There is no evidence of existing or potential geological or mineralogical resources at the project site or along the linear alignments.

8. There are no known paleontological resources on the project site.

9. Because the upper 3 to 4 feet of the surface of the proposed OGS site is disturbed, the material within that depth is unlikely to contain significant paleontological resources within their natural context and is assigned a negligible paleontological sensitivity rating.

10. The project owner will implement several mitigation measures to avoid impacts to any paleontological resources discovered, including worker education, preparing a Paleontological Monitoring and Mitigation Plan, and having a Paleontologic Resource Specialist on-site. These mitigation measures are found in Conditions of Certification **PAL-1** through **PAL-7,** below.

11. The facility could be designed and constructed to minimize the effect of geologic hazards and impacts to potential paleontological resources at the site during project design life.

12. No geologic hazards which would arise due to cumulative effects during operation of the proposed facility were identified.

CONCLUSIONS OF LAW

1. The Conditions listed below ensure that project activities will not cause significant adverse direct, indirect, or cumulative impacts to geological, mineralogical, or paleontological resources.

2. Compliance with the Conditions of Certification specified below and the **Facility Design** Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** will ensure that the OGS conforms to all applicable laws, ordinances, regulations, and standards related to geological, mineralogical, and paleontological resources as identified in **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep résumés on file for qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the résumé of the replacement PRM shall also be provided to the CPM.

The PRS's résumé shall include the names and phone numbers of references. The résumé shall also demonstrate to the satisfaction of the CPM the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. institutional affiliations, appropriate credentials, and college degree;
2. ability to recognize and collect fossils in the field;
3. local geological and biostratigraphic expertise;
4. proficiency in identifying vertebrate and invertebrate fossils; and
5. at least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic Resource Monitors (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or
- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or
- enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit a résumé and statement of availability of its designated PRS for on-site work.

At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with résumés naming anticipated monitors for the project stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and résumés to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor's beginning on-site duties.

PAL-2 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction laydown areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is

anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet. If the footprint of the project or its linear facilities change, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM.

If construction of the project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked the following week and until ground disturbance is completed.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM. If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance. If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within five days of identifying the changes.

PAL-3 If after review of the plans provided pursuant to **PAL-2**, the PRS determines that materials with moderate, high, or unknown paleontological sensitivity could be impacted, the project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a paleontological resources monitoring and mitigation plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified with CPM approval. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP 1995) and shall include, but not be limited to, the following:

1. assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;
2. identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the Conditions of Certification;
3. a thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;
4. an explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;
5. a discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling;
6. a discussion of procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed;
7. a discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8. procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources;
9. identification of the institution that has agreed to receive data and fossil materials collected, requirements or specifications for materials delivered for curation, and how they will be met, and the name and phone number of the contact person at the institution; and
10. a copy of the Paleontological Conditions of Certification.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS and acceptance of the PRMMP by the project owner evidenced by a signature.

PAL-4 If after review of the plans provided pursuant to **PAL-2**, the PRS determines that materials with moderate, high, or unknown paleontological sensitivity could be impacted then, prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM approved training for the following workers: project managers, construction supervisors, foremen, and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM approved worker training. Worker training shall consist of a CPM approved video or in-person presentation. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect these resources.

The training shall include:

1. a discussion of applicable laws and penalties under the law;
2. good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity;
3. information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5. an informational brochure that identifies reporting procedures in the event of a discovery;
6. a WEAP certification of completion form signed by each worker indicating that he/she has received the training; and
7. a sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow.

At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning to use a video for interim training.

If the owner requests an alternate paleontological trainer, the résumé and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.

In the monthly compliance report (MCR), the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.
2. The project owner shall ensure that the PRM(s) keeps a daily monitoring log of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.
3. The project owner shall ensure that the PRS notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources Conditions of Certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the Conditions of Certification.
4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours, or Monday morning in the case of a weekend event where construction has been halted because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month; general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

PAL-6 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during project construction.

Verification: The project owner shall maintain in his/her compliance file, copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of the CPM approved paleontological resource report (see **PAL-7**). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-7 The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submit it to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of

paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Oakley Generating Station (09-AFC-4)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on cultural, paleontological, and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

No.	Employee Name	Title/Company	Signature
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Cultural Trainer: _____ Signature:_____ Date: ___/___/____

PaleoTrainer: _____ Signature:_____ Date: ___/___/____

Biological Trainer: _____Signature:_____ Date:___/___/__

VII. LOCAL IMPACT ASSESSMENT

The effect of a power plant project on the local area depends upon the nature of the community and the extent of the associated impacts. Technical topics discussed in this portion of the Decision consider issues of local concern including **Land Use, Noise, Socioeconomics, Traffic and Transportation, and Visual Resources.**

A. LAND USE

The land use analysis focuses on two main issues: (1) whether the project is consistent with local land use plans, ordinances, and policies; and (2) whether the project is compatible with existing and planned uses.

In accordance with the CEQA Guidelines, we evaluate whether the project might result in significant impacts by:

- Converting Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use;
- Conflicting with existing zoning for agricultural use or a Williamson Act contract;
- Involving other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses;
- Physically disrupting or dividing an established community;
- Conflicting with any applicable habitat conservation plan or natural community conservation plan;
- Conflicting with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction, over the project. This includes, but is not limited to, a General Plan, redevelopment plan, or zoning ordinance; or
- Creating individual environmental effects which, when considered with other impacts from the same project or in conjunction with impacts from other closely related past, present, and reasonably foreseeable future projects, are considerable, compound, or increase other environmental impacts. (Cal. Code Regs., tit. 14, §§ 15000 et seq., Appen. G, §§ II, IX, XVII.)

We also evaluate whether the project complies with the laws, ordinances, regulations, and standards (LORS) identified and discussed below under "Compliance with LORS."

The evidence on this topic was undisputed except as discussed below regarding compliance with Local LORS. (3/15/11 RT 67-77, 3/25/11 RT 16-23, 69-70, Exs. 1 § 5.6, Appendix 5.6, 10 [Responses 35 – 39], 21, 23, 24, 27, 32, 44, 46, 47, 48, 50, 55, 61, 300, § 4.5.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Site and Vicinity

The OGS site is located in the City of Oakley, in eastern Contra Costa County, at 6000 Bridgehead Road, northeast of the junction of State Route 4 and State Route 160. The project would be located on a 21.95-acre site that was part of a larger 210-acre property owned by E. I. du Pont de Nemours and Company (DuPont). A lot line adjustment has been recorded to create the separate 21.95-acre project site.

The existing land use for the majority of the OGS is a vineyard, while a portion of the northwest end of the site is a wetland and a portion of the northeast end of the site was formerly used by DuPont for industrial purposes.

State Route 160 is adjacent to the west boundary of the project site. (Ex. 300, pp. 4.5-4 – 4.5-5.) The project is bounded to west by the PG&E Antioch Terminal, which is a large natural gas transmission hub, to the north by the industrial and/or vacant industrial portions of the DuPont property, to the east by DuPont's titanium dioxide landfill area, and to the south by the Burlington Northern Santa Fe (BNSF) railroad. The BNSF railroad runs in an east-west direction and is adjacent to the southern boundary of the OGS site. A 76.4-acre active vineyard, which is also in the process of redevelopment under the River Oaks Specific Plan, is south of the railroad. (Ex. 300, p. 4.5-4 – 4.5-5.)

More generally, the OGS site is surrounded by industrial and commercial uses to the north, west and east and agricultural uses to the south. Contra Costa Substation (CCS) is located approximately two miles west of the OGS Project site. Land in the general vicinity of the project site contains a mix of industrial and commercial uses, undeveloped land, open space, agriculture, recreation facilities and residential development. The nearest residences are approximately

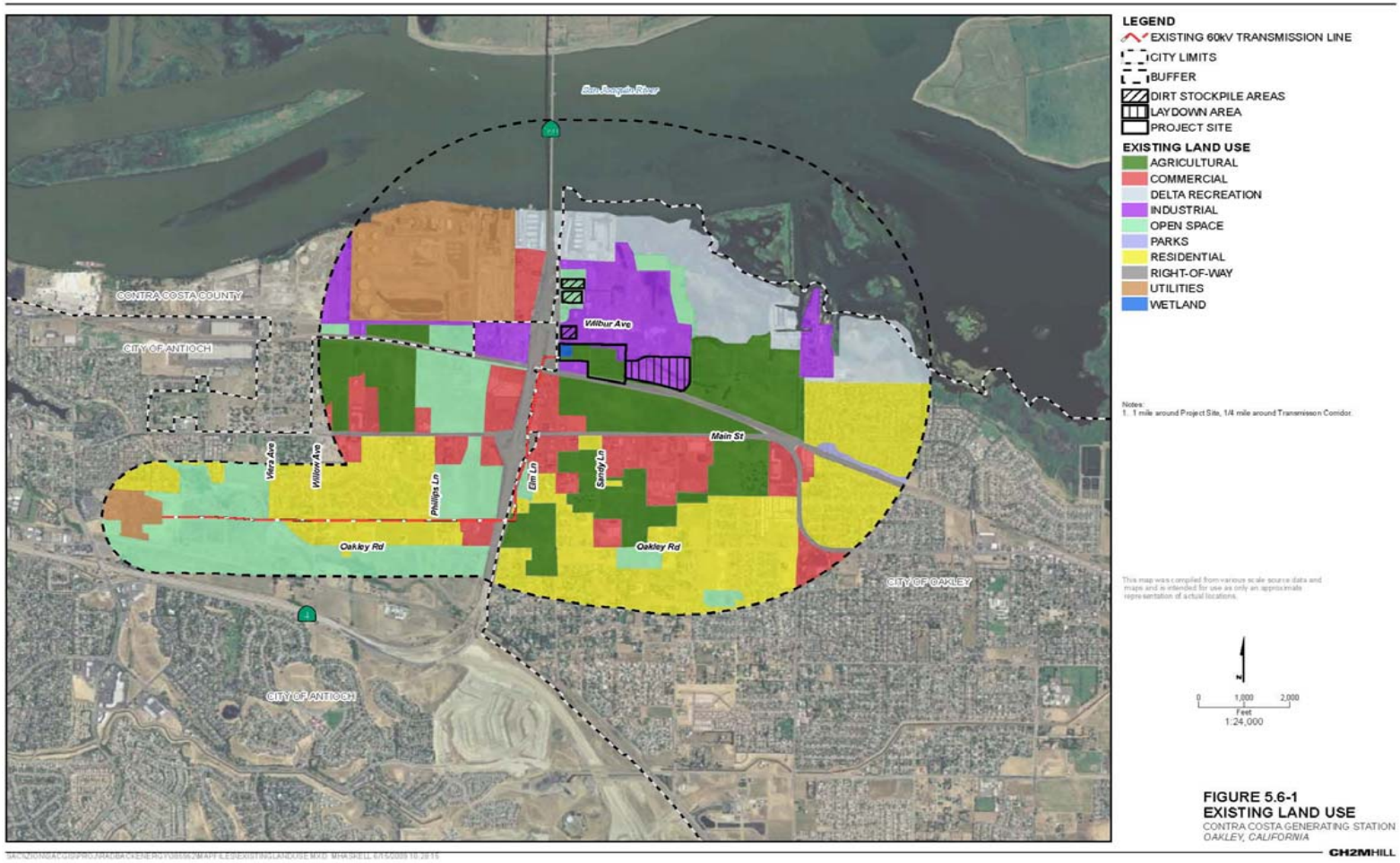
900 feet southeast of the site boundary. (Exs. 1, p. 5.6-9, 47, 300, pp. 4.5-3 – 4.5-4, pp. 4.5-6 – 4.5-7.)

Land Use Figure 1 below shows the project site in the context of the mix of urban and suburban uses with farmland (mostly vineyards) in the project area.

Construction laydown and parking areas will be located on a 20-acre parcel east of the project site boundary, but still within the DuPont property. Primary access to the project site during construction would also be from Bridgehead Road. (*Id*.)

Land Use Figure 2 below depicts the locations of the OGS Project site and laydown area.

Land Use Figure 1



Land Use Figure 2

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,000 2,000
Feet

FIGURE 1.1-2
PROJECT LOCATION
CONTRA COSTA GENERATING STATION
OAKLEY, CALIFORNIA

CH2MHILL

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2. Land Use Designations

a. Project Site

As more fully discussed in the **Waste Management** section of this Decision, a portion of the larger 210-acre parcel from which the OGS site was created, was once used by DuPont for a chemical manufacturing facility known as the Antioch Plant. Plant operations began in 1956 and ceased in 1998. DuPont prepared Phase I and Phase II Environmental Site Assessments for a portion of the property – the Western Development Area (WDA) – that contains the project site.

As stated above, the OGS Project site is within the City of Oakley. The City's General Plan designates the site as Utility Energy (UE). The UE designation allows power plant uses involved in the clean production of electricity using the best available combustion turbine technology. The OGS site is also within the Northwest Oakley Planning Area, which is intended for industrial and commercial development by the General Plan.

The City has designated the entire DuPont property, including the site, as a redevelopment zone; however, the City has not officially rezoned the property. Instead, the property continues to have the Heavy Industrial (H-I) zoning established by Contra Costa County before the Oakley incorporated. Allowed activities in an H-I district include heavy industrial manufacturing uses of :all kinds, including but not limited to the manufacturing or processing of petroleum, lumber, steel, chemicals, explosives, fertilizers, gas, rubber, paper, cement, sugar, and all other industrial or manufacturing products.

DuPont has submitted the DuPont Specific Plan for City of Oakley approval, which contemplates future mixed-use development of the WDA. (Ex. 1, pp. 5.6-15-5.6-16.) The Specific Plan envisions 15 acres of retail/commercial property, 34 acres of research and development/business park, 77 acres of light industrial development, and more than 200 acres of open space land. (Exs. 1, p. 5.6-10, 300, pp. 4.5-5- 4.5-7.)

As discussed above, the City has not formally rezoned the project site; therefore, the applicable zoning for the OGS site is Contra Costa County's H-I zoning designation.

In addition to the rezoning proposed by the DuPont Specific Plan, other rezoning changes for the OGS site are under consideration by the City of Oakley. According to the evidence, the City is contemplating a citywide rezone that will

rezone the OGS site to Specific Plan-3 ("SP-3"). The evidence indicates that Oakley's zoning code does not currently include a description of the zoning requirements or development standards for the SP-3 zone. (Exs. 1, p. 5.6-21, 300, p. 4.5-6.)

b. Other Project Features and Facilities

The transmission line traverses land under the jurisdiction of Contra Costa County, the City of Oakley and the City of Antioch. As a result, the transmission line alignment includes several different land use designations. In the County and the City of Oakley, these general plan designations are mostly Public/Semi-Public and Commercial, respectively. The portion of the line within county lands is not within a county zoning designation, and the City's zoning designations for the remaining portions of the transmission line are Light Industrial (L-I) and Retail Business (R-B). Within the City of Antioch, 1.4 miles of the transmission line would traverse the following general plan designations: Medium Density Residential, Medium Low Density Residential, Business Park, Public/Institutional, Open Space, and the Residential Transit-Oriented Development under the Hillcrest Station Specific Plan. Zoning designations include the Planned Development District (P-D), the Planned Business Center (PBC), and the Light Industrial District (M-1).

The west side of the construction laydown site is within the City of Oakley's Utility Energy General Plan designation and the east side is within the Light Industrial designation. The dirt stockpile areas are predominantly within the City of Oakley's Business Park General Plan designation with small areas on the west side of the sites within Contra Costa County's Public/Semi-Public General Plan designation. (Exs. 1, p. 5.6-14; 300, pp. 4.5-5 – 4.5-6.)

3. Direct and Indirect Impacts and Mitigation

a. Conversion of Farmland

Based on data obtained from the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), the majority of the project site is located on land designated as Farmland of Statewide Importance, with areas designated as Urban and Built-Up Land. (Ex. 300 p. 4.5-7.) Because the project would represent a nonagricultural use, CEQA requires us to determine whether this loss is a significant impact. We look to several authorities to guide our evaluation, including: 1) the CEQA definition of "significant effect on the

environment;" 2) the City of Oakley General Plan; and 3) City of Oakley zoning ordinance.

Under CEQA, a "significant effect on the environment" refers to a substantial or potentially substantial adverse change in any of the physical conditions within the affected area. (Cal. Code Regs, tit. 14, § 15382.) Several factors established by the evidence show that the conversion will result in less than significant impacts. The Oakley General Plan and zoning ordinance collectively designate the project site for a use that includes the clean production of electricity using combustion turbine technology compatible with adjacent uses. (Exs. 1, § 5.6.2.2.4, 300, p. 4.5-7.) In fact, the site is predominantly surrounded by non-agricultural land uses, including the DuPont site with existing industrial development and vacant land to the north and east, the PG&E Antioch Terminal (a natural gas transmission hub) to the west, and the BNSF railroad along the site's southern boundary.

According to evidence presented by the Applicant, the Oakley 2020 General Plan Environmental Impact Report (EIR) discusses the loss of agricultural resources throughout the community, at a programmatic level, and states that "while there are remnant orchards and vineyards within Oakley, such uses are constrained by a patchwork of urban uses. Based upon public comments by landowners and farmers within Oakley, the viability of commercial agriculture within Oakley has been compromised by the lack of large contiguous blocks of agriculture and urban encroachment." (Ex. 1, p. 5.6-24, citing City of Oakley General Plan EIR, § 3.5.)

Additionally, Contra Costa County, including the City of Oakley, adopted an Urban Limit Line (ULL) to preserve land outside of urban areas for agriculture, open space, and other similar uses. The 65/35 Land Preservation Standard of the ULL requires that at least 65 percent of all land in the County shall be preserved for agriculture, open space, wetlands, parks and other non-urban uses. The entire Oakley Planning Area is located inside the county ULL and therefore falls within the 35 percent of the County's area that is designated for urban and suburban development. (Ex. 1, p. 6.6-24.)

The General Plan EIR identifies Impact 3.5-C: "The proposed General Plan may convert prime farmland, unique farmland, or farmland of statewide importance or conflict with existing zoning for agricultural use or a Williamson Act contract within the Planning Area," and identifies this as a potentially significant impact. The EIR identifies all the policies proposed within the General Plan that protect

agricultural resources. In this regard, the EIR concludes: “The proposed General Plan accommodates agriculture, while providing for balanced needs of the City. The incremental environmental effect of the Proposed General Plan on agriculture is determined to be less than significant upon implementation of the [Proposed General Plan] Policies and Programs. No additional mitigation measures are necessary.” (Ex. 1, p. 5.6-24, citing Oakley General Plan EIR.) Thus, it appears that potential adverse impacts resulting from conversion of agricultural land within Oakley have been considered and mitigated by local policies to preserve open space and agricultural land outside of the ULL.

Staff produced additional evidence indicating that the vineyard on the project site is marginally productive. In a letter to Staff from Cline Cellars, Inc. (Cline), the entity that has reportedly managed approximately 13 acres of vineyards on the OGS site for twenty-five years, Cline states that, “…[t]hese grapes have a very low yield and… due to its size, the low yields and proximity to industrial development, we do not consider this property to have great agricultural potential and it should not be treated as prime farmland.” (Ex. 300, p. 4.5-7.).

Conversion of the project site will not result in a significant loss of agricultural land. We make this same finding regarding the transmission line. Transmission line construction requires a pull-and-tensioning site, which would be located in a vineyard just west of Highway 160. This site is located within land designated as Farmland of Statewide Importance; however, because it is a construction site, impacts to agricultural land would be temporary and not result in any permanent conversion of existing farmland. Therefore, this impact would be less than significant. (Ex. 300, pp. 4.5-7 -4.5-8.)

The evidence also establishes that the transmission line will be located within an existing utility easement and placed within the existing 69-kV transmission line corridor on new monopole steel towers. The monopole towers will replace the existing lattice steel towers. Monopole towers have a smaller footprint than lattice towers and therefore, result in a reduced footprint. Thus, because the project’s transmission line will merely continue an existing use of Farmland of Statewide Importance but with reduced pole footprints, construction of the transmission line is not expected to result in significant impacts to agricultural land. (Ex. 1, 5.6-24.)

b. Cause Changes that Would Result in Conversion of Farmland or Conflict with Williamson Act Contracts

There is no evidence that the power plant will attract residential or commercial development or other uses to the project area that would result in farmland conversion or that transmission line construction would induce other land changes resulting in the long-term conversion of farmland. Furthermore, the proposed project and related facilities are not subject to a Williamson Act contract nor are they within agricultural zoning designations. Therefore, the project would not conflict with existing agricultural zoning or Williamson Act contracts. (Exs. 1, pp. 5.6-24-5.6-25; 300, p. 4.5-7.)

c. Disruption or Division of Existing Community

The OGS Project would not disrupt or divide an established community[1], nor would it conflict with the established industrial and other uses located immediately adjacent to the project site. As shown by the evidence, the project will be located on private property and surrounded by industrial development. As discussed above, land in the general vicinity of the project site contains a mix of industrial and commercial uses, undeveloped land, open space, agriculture, recreation facilities and residential development. The nearest residences are approximately 900 feet southeast of the site boundary. Access to the project (including the construction laydown/worker parking area) would be through existing road right-of-way.

In addition, the offsite portions of the transmission line would be constructed within an existing transmission line ROW; and the sanitary sewer force main would extend 0.33 south from the project site within the public ROW of Bridgehead Road to Main Street, it would then turn eastward for 0.11 mile and connect to an existing sewer line. After construction of the sewer line, the pavement in Bridgehead Road and Main Street would be restored ensuring that no existing roadways or pathways would be completely blocked or removed from service due to the proposed OGS. (Ex. 300, p. 4.5-8.)

d. Conflict with a Habitat or Natural Community Conservation Plan

The OGS Project site is located within the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCCHP/NCP) area. The ECCCHP/NCP provides regional conservation and development guidelines

[1] An established community usually refers to a residential community.

to protect natural resources, while improving and streamlining the permit process for endangered species and compliance with wetland regulations. (Ex. 1, p. 5.6-16.) Contra Costa County and the cities of Brentwood, Clayton, Oakley, and Pittsburg participate in the ECCHCP as a joint exercise of powers agency.

The Applicant identified the following ECCHP guiding principles as being most relevant to the OGS Project:

- Reduce conflicts between listed species and economic development, agriculture, and other land use activities to promote conservation and biological diversity and, to the maximum extent practicable, contribute to recovery of plant and animal species addressed in the ECCHCP.
- Promote retention and establishment of open space buffers and green belts consistent with the goals of local governments in order to provide habitat linkages' separate designated urban area; minimize the loss, fragmentation, and degradation of natural habitats; protect and enhance important habitats for covered species; and provide movement corridors and connectivity between the various habitat associations or eco-regions in the county.
- Foster the continuation of land uses (e.g., agriculture and open space recreation) that are compatible with the protection of important habitats for covered species and, to the maximum extent practicable, maintain existing agricultural values on those lands that are affected by the ECCHCP. (Ex. 1, p. 5.6-16 [citing the East Contra Costa County Habitat Conservation Plan Association, 2006].)

There is no evidence that the project would conflict with these guiding principles. Instead, the evidence shows that project is sited and is designed to be compatible with its adjacent developed land uses. Thus is appears that project implementation would not adversely affect implementation of the ECCCHP/NCP. (Exs. 1, p. 5.6-23, 61.) The project's compliance with this plan is further discussed in the **Biological Resources** section of this Decision.

e. Consistency with Local Land Use LORS

As discussed above, the OGS site is within the City of Oakley and portions of the transmission line traverse areas within the City of Antioch. The project site has not officially been rezoned by the City of Oakley, so the property continues to have the H-I zoning designation established by Contra Costa County. Therefore, the county's and the cities' General Plans and zoning ordinances are the primary laws governing local land use.

In accordance with applicable codes and regulations, we have evaluated the information provided by the Applicant and Staff to determine if elements of the project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, or that would normally have jurisdiction over the project except for the Energy Commission's exclusive authority to license power plants in the state with a generating capacity of 50 MW or greater. (20 Cal. Code Regs. § 1744; Pub. Res. Code §§ 25500–25543.)

The Energy Commission's license takes the place of other state, regional, and local permits (e.g., conditional use permits and variances) and other entitlements that would otherwise be required. The Energy Commission's licensing process includes preparation of findings regarding the conformity of the proposed facility with applicable local, regional, state, and federal standards, ordinances, and laws (Pub. Res. Code § 25523 [d][1]). A determination of noncompliance requires the Energy Commission to consult with the agencies responsible for implementation of identified ordinances or regulations to attempt to correct or eliminate the noncompliant condition.

As part of Staff's analysis of local LORS compliance, Staff sent a letter to the City of Oakley in November 2009. The City of Oakley's April 5, 2010 response letter and additional letters submitted in 2011, reflect the City's determination that the OGS Project complies with Oakley LORS. If the City had exclusive jurisdiction over the project it would require the project to comply with City's Conditional Use Process (CUP) and other requirements of the municipal code. As suggested by Intervenor Sarvey in his post-hearing brief, the City would likely require a variance to allow the project's building height to exceed 100 feet. However, the City, in its April 5 letter identified for Staff recommended condition of approval for the Energy Commission's consideration, "that would satisfy the City's substantive requirements, if not for the Commission's exclusive jurisdiction." We reasonably infer from this letter, that the City would issue the CUP and variance if it had exclusive jurisdiction. (Ex. 300, p. 4.5-8- 4.5-10.)

The foregoing land use analysis and the analyses included throughout this Decision (See, e.g., **Traffic and Transportation**, **Visual Resources, Socioeconomics**), further establish that granting a CUP and height variance to the OGS Project would be consistent with the City's standards. For instance, the following conditions must exist prior to approval of an variance:

1. That any variance authorized shall not constitute a grant of special privilege inconsistent with the limitations of other properties in the vicinity and the respective land use district in which the subject property is located;

2. That because of special circumstances applicable to the subject property because of its size, shape, topography, location or surroundings, the the strict application of the respective zoning regulations is found to deprive the subject property of rights enjoyed by other properties in the vicinity and within the identical land use district;

3. That any variance authorized shall substantially meet the intent and purpose of the respective land use district in which the property is located.

For a CUP to issue, the following findings must be made:

1. That the site for the proposed use is adequate in size and shape to accommodate the use and all yards, spaces, walls and fences, parking loading, landscaping and other features required by this title to adapt the use with land and sues in the neighborhood;

2. That the site for the proposed use relates to streets and highways adequate in width and pavement type to carry the quantity and kind of traffic generated by the proposed use;

3. The proposed use will be arranged, designed, constructed, operated and maintained so as to be compatible with the intended character of the area and shall not change the essential character of the area from that intended by the general plan and the applicable zoning ordinances;

4. That the proposed use provides for the continued growth and orderly development of the community and is consistent with the various elements and objectives of the general plan;

5. That the proposed use, including any conditions attached thereto, will be established in compliance with the applicable provisions of CEQA.

More particularly, Oakley's General Plan designates the project site for a land use of Utility Energy, which allows for power plant uses involved in the clean production of electricity using the best available combustion turbine technology. The project parcel is currently zoned SP-3 (future Specific Plan). However, the City has not yet approved a specific plan for the parcel. Accordingly, the underlying applicable zoning is Heavy Industrial. According to the City, this zoning is compatible with power plant development. A rezone would not be required by the City nor would the City require a revision to the DuPont Specific Plan. Thus, the project is appropriately sited pursuant to General Plan and Municipal Code (zoning ordinance) requirements and does not conflict with the City's land use designations and applicable land use policies.

The evidence indicates that the City would require the project to pay a General Plan Fee required by City Resolution No. 53-03 if the City were the permitting authority for the OGS Project. Compliance with this resolution ensures that developers and property owners pay for all costs incurred by the City related to development or exercise of entitlements. In this instance, because the Energy Commission has sole jurisdiction over OGS licensing, Resolution No. 53-03 is inapplicable.

As discussed above, the transmission line would traverse approximately 1.4 miles of land in the City of Antioch within an existing transmission line ROW. The transmission line location is consistent with the City of Antioch's General Plan and zoning since it will be sited within an existing transmission line ROW. (Ex. 300, p.4.5-15.)

Land Use Table 2 below summarizes the Applicant's and Staff's determinations regarding the consistency of the proposed OGS with the specific applicable land use LORS. These determinations are supported by the evidence of record and establish that the OGS Project will comply with applicable land use LORS.

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LAND USE Table 2
Project Compliance with Applicable Federal, State, and Local Land Use LORS

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Federal	None		
State	None		
Local			
Contra Costa Code, Title 8 (Zoning) - Chapter 84-62: H-I, Heavy Industrial District (Contra Costa Co. 2008)	Article 84-62.4. Uses: *84-62.402 Uses--Permitted.* Heavy industrial manufacturing uses of all kinds, including, but not limited to, the manufacturing or processing of petroleum, lumber, steel, chemicals, explosives, fertilizers, gas, rubber, paper, cement, sugar, and all other industrial or manufacturing products shall be permitted in the H-I district. (Ord. 1459: prior code § 8164(b): Ord. 1046: Ord. 382). *84-62.404 Uses--Requiring land use permit.* Uses requiring land use permit in the H-I district shall be the same as the uses designated in Section 84-58.404 for the L-I district.[2] (Ord. 67-39 § 5, 1967: Ord. 1459: prior code § 8164(a): Ords. 1046, 382). *Article 84-62.6. Lot, Height, Yard 84-62.602 Lot, height, yard--Regulations.* There are no lot area, height, or side yard regulations or limitations in the H-I	YES	AFC Figure 5.6-4 shows the existing zoning as Redevelopment Agency Planned Development (P-1 RA) within the city of Oakley (CCGS 2009). However, based on a letter from the city and the updated 2009 Zoning Map, the current zoning is SP-3 (future Specific Plan) (COO 2010b, COO 2009). Nonetheless, the city's zoning designation for the project site is pending; therefore, the county's Heavy Industrial zoning is still applicable, which is a "carry-over" zone from the Contra Costa County Zoning Ordinance. The OGS is a natural gas-fired power plant proposed to be developed on a site that is currently used for agriculture, but is a part of an existing industrial development. Therefore, the processing of gas would be consistent with the heavy industrial land use types allowed in the county H-I (Heavy Industrial) District[3]. The propose project is consistent with the development requirements of the Contra Costa County Code.

[2] *84-58.404 Uses--Requiring land use permit […in Light Industrial District].* All of the uses in the following districts are permitted after the granting of land use permits: Single family residential districts, multiple family residential districts, retail business districts, neighborhood business districts, general commercial districts, agricultural districts and forestry recreation districts. (Ord. 67-39 § 4, 1967: prior code § 8163(a): Ord. 1046: Ord. 1006: Ord. 382).

[3] For example, the Contra Costa Power Plant is located in unincorporated Contra Costa County and is within the HI zoning district.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	district. (Ord. 1459: prior code § 8164(c): Ord. 1046: Ord. 382).		
City of Oakley 2020 General Plan: Chapter 2 - Land Use Element (Oakley 2010a)	General Land Use Policy 2.1.4 Promote the placement of the most intensive non-residential development (Commercial, Business Park and Light Industrial) in the Northwest Oakley Planning Area as defined in Figure 2-3.	YES	The proposed industrial project would be located in the Northwest Oakley Planning Area and is consistent with this policy.
	Policy 2.1.8 Discourage development that results in land use incompatibility. Specifically, require buffers between uses where appropriate and discourage locating sensitive uses (residential) adjacent to existing potentially objectionable uses or locating potentially objectionable uses adjacent to sensitive uses.	YES	The proposed project site is surrounded by industrial development. Other nearby land uses include commercial and agricultural development. There are no residential developments adjacent to the project site, and the closest residence is 900 feet southeast of project site boundary. Therefore, the proposed project is consistent with this policy.
	INDUSTRIAL Goal 2.4 Promote economic growth within the City of Oakley to ensure employment opportunities and goods and services are available within the community.	YES	The OGS would expand the existing industrial development in the Northwest Oakley Planning Area, therefore providing additional employment. The proposed project is consistent with this goal.
	Policy 2.4.1 The City of Oakley does not support or accommodate general Heavy Industrial uses. The City does allow and encourage Light Industrial and Utility Energy uses in appropriate locations.	YES	The proposed project is a utility energy development, and the project site is within the Northwest Oakley Planning which is intended for industrial development by the city's General Plan. There are no residential developments adjacent to the project site, and the closest residence is 900 feet southeast of project site boundary. In addition, the southern boundary of the site would be adjacent to a railroad ROW, which would create a buffer between the proposed project and the agricultural activities south of the site. Therefore, the proposed project would be compatible with existing land uses and is consistent with these policies.
	Policy 2.4.2 Avoid development which results in land use incompatibility. Specifically, avoid locating objectionable land uses within residential neighborhoods and protect areas designated for existing and future		

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	industrial uses from encroachment by sensitive (residential) uses.		
	Policy 2.4.3 Ensure there is adequate land available to accommodate industrial development.		
	Policy 2.4.4 Incorporate design buffers between potentially incompatible land uses and avoid, to the extent feasible, new land uses that compromise existing businesses and operations.		
	(UE) Utility Energy The Utility Energy designation allows for power plant uses involved in the clean production of electricity utilizing the best available combustion turbine technology. The structures associated with this land use designation shall be aesthetically designed, including landscape buffers, and produce no significant adverse affects, including excess noise, dust, and glare on surrounding land uses.	YES	The OGS is a natural gas-fired power plant that would produce electricity using current best available combustion turbine technology, and is consistent with this land use designation.
	Northwest Oakley Planning Area (summarized) The Northwest Oakley Special Planning Area encompasses approximately 972 acres of land located generally north of existing Oakley Road and generally bounded by Big Break Road to the east, Highway 160 to the west and the Delta along the north. This Area has historically been dominated by the former DuPont facility to the north and other uses of industrial character along Highway 4/Main Street. The BNSF	YES	The proposed project site is within the Northwest Oakley Planning which is intended for industrial and commercial development by the city's General Plan. As a utility energy development, the proposed project would be consistent with the purpose and intent of this planning area.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	Railroad bisects this Area… *Development Vision* The City envisions this Area as the primary employment center within Oakley. The existing uses along Highway 4/Main Street are designated for commercial uses. Land north of the BNSF Railroad is designated as Business Park, Utility Energy and Light Industrial. Development within the Business Park designation is anticipated to be of a campus character, providing attractive architecture within a landscaped setting… Light Industrial uses will be required to maintain development standards that will contribute to the success of the areas designated as Business Park.		
City of Oakley Zoning Ordinance	**Specific Plan-3 (SP-3)** The SP-3 (future Specific Plan) zone is pending, and does not include a description of the zoning requirements or development standards; therefore, the county's Heavy Industrial (H-I) zoning is still applicable, which is a "carry-over" zone from the Contra Costa County zoning ordinance (COO 2010c).	YES	According to the AFC, the city's zoning is (P-1 RA) Redevelopment Agency Planned Development, which is based on the city's 2008 zoning map (AFC page 5.6-15). However, according to the city's updated 2009 zoning map, the current applicable zoning district for the project site, the dirt stockpile areas and the construction laydown site is Specific Plan-3 (COO 2009). According to the city of Oakley, although …"[t]he project parcel is currently zoned SP-3 (future Specific Plan), …the City has not yet approved a specific plan for the parcel, therefore, the underlying applicable zoning designation would be Heavy Industry (H-I). This zoning is compatible with power plant development. A rezone would not be required with CEC certification. A revision to the DuPont Specific Plan would not be required with CEC certification" (COO 2010c).

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
			As discussed above the proposed project is consistent with the Contra Costa County HI zone.
City of Antioch General Plan (COA 2003):	4.4.1 Land Use Designations **Medium Low Density.** These areas are generally characterized by single-family homes in typical subdivision development, as well as other detached housing such as zero lot line units and patio homes. Duplex development would generally fall into this development density. Areas designated Medium Low Density are typically located on level terrain with no or relatively few geological or environmental constraints. Older subdivisions within the northern portion of Antioch reflect this residential density. **Medium Density Residential.** A wide range of living accommodations, including conventional single-family dwellings, small lot single-family detached dwellings, mobile homes, townhouses, and garden apartments, characterizes the Medium Density land use designation. Development in these areas can be expected to be a maximum of two (2) stories, and include generous amounts of public or open space for active and passive recreational uses. Lands adjacent to parks, commercial uses, transit routes and rail stations, and arterial roadways would be appropriate for the upper end	YES	The proposed transmission line would traverse approximately 1.4 miles of land in the city of Antioch within an existing transmission line ROW. The surrounding area consists of open space, commercial, and residential development. Staff concludes that the transmission line would be consistent with the city of Antioch's General Plan since it would be sited within an existing transmission line ROW and any associated construction-related impacts would be temporary. Therefore, upon completion of construction, the transmission line would not result in any LORS inconsistencies.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	of the allowable development intensity for this category. Other lands would serve as a buffer or transition between lower density residential areas and higher density residential and commercial areas, as well as areas exhibiting greater traffic and noise levels. **Business Park.** The primary purpose of lands designated Business Park on the General Plan land use map is to provide for light industrial, research and development, and office-based firms seeking an attractive and pleasant working environment and a prestigious location. Business Park areas are typically labor-intensive, meaning that the density of employment is higher than areas involving mostly manufacturing or warehouse uses. Business Park development may occur as a single use, a subdivision wherein individual entities own and operate their businesses, or as multi-tenant complexes. **Public/Institutional.** This category is used to designate public land and institutional uses, including public and private schools and colleges, public corporation yards, libraries, fire stations, police stations, water treatment facilities, animal shelters, public and private museums, churches, and governmental offices. **Open Space.** These land uses are of a basically open space nature, and		

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	include parks, as well as other open space areas. Certain open space areas, such as those that exist to protect sensitive environmental resources, might not be open to public use, while other lands may be owned and managed by private entities, and therefore not open to the general public. The most prevalent public open space uses are City and regional parks, as well as private open space areas within residential developments. It is intended that this designation be applied only to lands owned by public agencies or which are already programmed for acquisition.		
	4.3.2 Community Structure Policies. *Policy b:* Give priority to new development utilizing existing and financially committed infrastructure systems over development needing financing and construction of new infrastructure systems. *Policy d:* Concentrate large-scale industrial uses along the waterfront east of Rodgers Point and within areas designated for industrial use along existing rail lines. Limit employment-generating uses adjacent to residential areas and within mixed-use planned communities to business parks and office uses.	YES	Consistent with Policy b, the OGS project (associated features) would redevelop a portion of an existing industrial site within an industrial area. This redevelopment takes advantage of existing and nearby infrastructure (i.e., water and electric and gas transmission lines, major transportation corridors, rail facilities). In addition, consistent with Policy d, the OGS project would expand the existing industrial development along Wilbur Road, providing additional employment. Therefore, the proposed project is consistent with the city's applicable Community Structure Policies.
	4.4.4.2 Employment-Generating Land Use Policies. *Policy d:* Ensure appropriate separation	YES	The proposed transmission line would traverse approximately 1.4 miles of land in the city of Antioch within an existing transmission line ROW. The surrounding area

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	and buffering of manufacturing and industrial uses from residential land uses.		consists of open space, commercial, and residential development. Staff concludes that the transmission line would be consistent with the city of Antioch's General Plan since it would be sited within an existing transmission line ROW and any associated construction-related impacts would be temporary. Therefore, upon completion of construction, the transmission line would not result in any LORS inconsistencies.
City of Antioch – Hillcrest Station Specific Plan: General Plan Amendment	**4.4.6.4 Hillcrest Station Area Focus Area,** The SR-4/SR-160 Industrial Frontage Focus Area has been repealed and replaced with the Hillcrest Station Area Specific Plan. Please refer to this adopted Plan for all policies related to the area shown on Figure 4.5. **Residential TOD.** This mixed-use classification is intended to create a primarily residential neighborhood within walking distance to eBART station, with complimentary retail, service, and office uses. Residential densities are permitted between a minimum of 20 and a maximum of 40 units per gross acre. A range of housing types may be included in a development project, some of which may be as low as 10 units per acre, provided the total project meets the minimum.	YES	The city of Antioch provided PSA comments correcting some of the land use designations in the PSA for the transmission line. Based on communications with the city of Antioch planning staff, the Hillcrest Station Specific Plan has been included. The city did not indicate that there would be any potential conflicts with this Specific Plan, and since the transmission line would be sited within an existing transmission line ROW, any associated construction-related impacts would be temporary. Therefore, Energy Commission staff concludes that the transmission line would be consistent with this plan, and upon completion of construction, the transmission line would not result in any LORS inconsistencies.
City of Antioch Municipal Code, Title 9: Planning and Zoning (COA 2009) Chapter 5 – Zoning:	Article 3 § 9-5.30 **(J) M-1 Light Industrial District.** This district allows light industrial uses and excludes those heavy industrial	YES	The proposed transmission line would traverse approximately 1.4 miles of land in the city of Antioch within an existing transmission line ROW. The surrounding area consists of open space, commercial, and residential

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Article 38, Land Use Regulations	uses with potentially hazardous or negative effects. This district is consistent with the Business Park, Light Industrial, and Rail-Served Industrial General Plan Designations, as well as with the Eastern Waterfront, SR-4/SR-160 Business Park, and East Lone Tree Focused Planning Areas. Uses include the fabrication, assembly, processing, treatment, or packaging of finished parts or products from previously prepared materials typically within an enclosed building.		development. Staff concludes that the transmission line would be consistent with these zoning districts since it would be sited within an existing transmission line ROW and any associated construction-related impacts would be temporary. Therefore, upon completion of construction, the transmission line would not result in any LORS inconsistencies.
	(L) PBC Planned Business Center. This district provides sites in landscaped settings for office centers, research and development facilities, limited industrial activities (including production and assembly, but no raw materials processing or bulk handling), limited warehouse type retail and commercial activities, and small-scale warehousing distribution. Individual business centers would have a common architectural and landscape treatment, while architectural variation is encouraged between centers. The district is consistent with the Business Park and Light Industrial General Plan Designations, as well as with the Somersville Road Corridor, Eastern Waterfront, SR-4/SR-160 Business Park, and East Lone Tree Focused Planning Areas.		
	Article 23: Planned Development		

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	District Planned Development Districts are intended to accommodate a wide range of residential, commercial and industrial land uses which are mutually supportive and compatible with existing and proposed development on surrounding properties. § 9-5.2304 USES PERMITTED. Any and all uses otherwise permitted in the city may be included in a P-D District, provided such uses are shown on the approved final development plan for that district and are in accordance with the General Plan and any applicable Specific Plan.		

f. Land Use Compatibility

We also considered the project's compatibility with other existing land uses in the same setting. Land use compatibility refers to the physical compatibility of planned and existing land uses. As discussed above, the project site is designated for zoning and development purposes and is within an industrial area. The project will not result in physical land use incompatibilities with existing, surrounding land uses. Nor will it be incompatible with nearby sensitive receptors such as schools, with day-care facilities, hospitals, nursing homes, or residential areas.

The area immediately surrounding the project includes uses primarily associated with industrial uses and public utilities. Sensitive receptors such as recreational facilities, schools, and churches are within a one-mile buffer of the OGS site but none are in close proximity of the proposed project site. The nearest residence is 900 feet southeast of the project site and the nearest residential neighborhood is approximately 4,000 feet east of the site boundary

Given the existing and previously permitted uses in the OGS Project area, and the fact that the project and its associated features/facilities are consistent with local LORS (which are developed by local jurisdictions to mitigate impacts of planned development), the project is not considered an incompatible land use with the surrounding and nearby uses, including sensitive receptors. (Ex. 300, pp. 4.5-20 – 4.5-21.)

4. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [Cal. Code Regs., tit. 14, § 15065(a)(3).]

The area in the immediate vicinity of the OGS site consists of similar industrial and utility development, as well as areas of commercial and agricultural development. Areas south of the OGS site have new and growing residential developments and, the following nearby projects are pending:

- the River Oaks Crossing Specific Plan (Oakley);
- the DuPont Specific Plan (Oakley);
- the Eastern Waterfront Employment Focus Area (Oakley); and
- the SR4 Industrial Frontage (Antioch).

These projects would contribute to the loss of land currently used as vineyards. For instance, implementation of the Rivers Oaks Crossing Specific Plan would result in the conversion of 76.4 acres of land currently used for vineyards. Implementation of the redevelopment plans within the Eastern Waterfront Focus Area would result in the conversion of approximately 136 acres of land currently in use for agriculture. Although the cumulative implementation of these planned developments would result in the conversion of lands that are currently in agricultural production to urban land uses, the project-related cumulative land use impacts would be less than significant. As shown by the evidence, the acreage of the conversions are relatively small, the areas have low agricultural yields, and the project areas are located where surrounding industrial and commercial development is prevalent.

In addition to the projects identified above, the Marsh Landing Generating Station and the Willow Pass Generating Station are proposed power plants that would be located west of the project site at the locations of the existing Contra Costa (in unincorporated Contra Costa County) and Pittsburg (in city of Pittsburg). These projects are consistent with the general industrial character of the existing on-site permitted uses and the pattern of development of the surrounding area. (Exs. 1, p. 5.6-27; 300, p. 4.5-21.)

As shown by the documentary record and explained during the March 25, 2011 continued hearing, neither the Applicant nor Staff considered the proposed development plans of the Lauritzen Yacht Harbor in the cumulative impacts analyses. (3/25/11 RT 16-23.) CEQA allows this omission. Under CEQA, a cumulative impacts analysis assessing future projects need only consider reasonably foreseeable probable projects. (See Cal. Code Regs., tit. 14, § Reg. 15130.) Reasonably foreseeable future projects typically include those currently under construction or in the process of being approved by a local public entity. Projects that have not yet entered the approval process do not normally qualify as “foreseeable” since the detailed information needed to conduct this analysis is not available. There is no evidence that the Lauritzen Yacht Harbor has a specific, pending development project before the City of Oakley that would make it a reasonably foreseeable project. Rather, comments received by and on behalf of Lauritzen Yacht Harbor and from the City of Oakley establish that the

City merely amended its zoning code to allow a future commercial waterfront master plan with a residential component subject to the City issuing a conditional use permit. The Lauritzen Yacht Harbor appears to have no approved or pending project. (3/25/11 RT 73-84, 84-91, 92-94; March 29, 2011 letter from City of Oakley.)

The cumulative impacts analysis properly limited its scope to reasonably foreseeable projects and establishes that the OGS Project will not contribute to cumulative land use impacts.

5. Public and Agency Comments

Staff received comments on the Preliminary Staff Assessment (PSA) from the City of Antioch. The City of Antioch indicated that the applicable general plan and zoning designations listed in the Land Use section for portions of the transmission line required correction. Staff contacted the City in response to the comments and learned the current City data identifies the applicable Antioch land use LORS. As a result, Staff has revised the list of applicable LORS in the Final Staff Assessment to include the following designations: Business Park, Public/Institutional, and the Residential Transit-Oriented Development from the Hillcrest Station Specific Plan. Staff also learned that the C-3 zoning designation included in the PSA is not applicable and instead, the area should be identified as the Planned Business Center. (Ex. 300, pp. 4.5-21- 4.5-22.) Staff made the corrections as reflected in the above discussion and shown in **Land Use Table 2**.

During and after the March 25, 2011 continued hearing, oral and written comments were submitted by and on behalf of Lauritzen Yacht Harbor and Driftwood Marina, (3/25/11 RT 73-84, 84-91; Letters dated March 24, 2011.) The responsive comments by the City of Oakley (3/25/11 RT 92-94; Letter dated March 29, 2011) and the Cumulative Impacts discussion above adequately address Lauritzen Yacht Harbor and Driftwood Marina's concerns that the OGS plant could adversely impact future plans for mixed-use development near the project site. As explained by the City of Oakley, the City approved a zoning amendment in 2010 that would allow residential or commercial mixed use development in Oakley's waterfront area, but no related development entitlements have been sought by or granted to anyone. Thus, as explained by the City's comments and shown by the evidence of record, Lauritzen/Driftwood have no reasonably foreseeable project that could reasonably be assessed under a CEQA land use impacts analysis. Instead, as discussed above, the Applicant and Staff evaluated all known approved and pending projects and local

plans that might be affected by the OGS Project and assessed whether the project complies with each of CEQA's significance criteria and applicable LORS. These thorough analyses, which we have independently reviewed, establish that the OGS Project will be consistent with local land use plans and compatible with existing and reasonably foreseeable planned land uses. (See, e.g., Exs. 1 § 5.6, Appendix 5.6, 10 [Responses 35 – 39]; 21; 23; 24; 27; 32; 44; 46; 47; 48; 50; 55; 61; 300, § 4.5.)

The Agricultural-Natural Resources Trust of Contra Costa County submitted letters indicating that while it does not oppose the OGS Project, it asks the Energy Commission to evaluate whether the project's conversion of Farmland of Statewide Importance is significant. CEQA requires us to determine whether this loss is a significant impact. We evaluated the impact based on authorities including: 1) the CEQA definition of "significant effect on the environment;" 2) the City of Oakley General Plan; and 3) City of Oakley zoning ordinance. As more fully discussed above, local LORS and underlying environmental documents contemplate such conversion and do not impose mitigation in view of a regional framework that ensures preservation of a specified percentage of agricultural land. In addition, low agricultural yields on the project site, the relatively minimal size of the conversion (21.95 acres), and the surrounding industrial development, render the conversion impact less-than-significant

FINDINGS OF FACT

Based on the evidence, the Commission makes the following findings:

1. The project will convert 21.95-acres of Farmland of Statewide Importance The conversion is consistent with and contemplated by the City of Oakley 2020 General Plan Environmental Impact Report. The conversions would not result in significant impacts nor does it necessitate mitigation under the Oakley General Plan.

2. The OGS Project will not conflict with existing zoning for agricultural use or a Williamson Act contract.

3. There is no evidence that the project will physically divide or disrupt an established community.

4. The OGS Project is consistent with applicable land use LORS.

5. The OGS is compatible with surrounding land uses and will not result in any unmitigated public health or environmental impacts to sensitive receptors.

6. The cumulative implementation of the planned developments would result in the conversion of lands that are currently in agricultural production to urban land uses; however, project-related cumulative land use impacts would be less than significant.

CONCLUSIONS OF LAW

1. The OGS Project will not result in significant adverse direct, indirect, and cumulative land use impacts. No Conditions of Certification are required for this topic.

2. The record contains an adequate analysis of the land use laws, ordinances, regulations, and standards that are relevant to the project and establishes that the project will not create any unmitigated, significantly adverse land use effects as defined under the California Environmental Quality Act.

B. TRAFFIC AND TRANSPORTATION

This section addresses the extent to which the OGS Project will affect the local area's transportation network. The record contains an analysis of: (1) the roads and routes that are proposed to be used for construction and operation; (2) potential traffic-related problems associated with the use of those routes; (3) the anticipated encroachment upon public rights-of-way during the construction of the proposed project and associated facilities; (4) the frequency of trips and probable routes associated with the delivery of hazardous materials; and (5) the possible effect of project operations on local airport flight traffic.

Project impacts were evaluated according to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Under CEQA, we consider whether the project will:

- Conflict with adopted plans, ordinances, or policies establishing measures of effectiveness for the performance of the circulation system, polices, plans, or programs;
- Cause a substantial increase in traffic when compared with the existing traffic load and capacity of the street system;
- Conflict with an applicable congestion management program, including a level of service (LOS) standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways;
- Substantially increase hazards due to a design feature or incompatible uses; or
- Result in inadequate parking capacity or a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks or in inadequate emergency access. (CEQA Guidelines, Appendix G.)

As discussed below, we also evaluated the project's compliance with the applicable laws, ordinances, regulations, and standards (LORS) set forth below in **Traffic and Transportation Table 1**.

Traffic and Transportation Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Federal	
Aeronautics and Space Title 14 Code of Federal Regulations (CFR), part 77 Objects Affecting Navigable Airspace (14 CFR 77)	Establishes standards for determining physical obstructions to navigable airspace; sets noticing and hearing requirements; and provides for aeronautical studies to determine the effect of physical obstructions on the safe and efficient use of airspace.
State	
California Vehicle Code (CVC), division 2, chapter 2.5; div. 6, chap. 7; div. 13, chap. 5; div. 14.1, chap. 1 & 2; div. 14.8; div. 15	Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
California Streets and Highway Code, division 1 & 2, chapter 3 & chapter 5.5	Includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits.
California Street and Highway Code §§117, 660-711	Requires permits from California Department of Transportation (Caltrans) for any roadway encroachment during oversize truck transportation and delivery. Such encroachment permits are also needed for roads that would include construction from new sewer line connections or be crossed by overhead transmission line stringing, as well as for parallel roads where transmission line construction activities would require the use of any public right-of-way (e.g., temporary lane closures).
California Street and Highway Code §§660-711	Requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.
Contra Costa County 2009 Countywide Comprehensive Transportation Plan	The city of Oakley is located within the East County planning area of the Contra Costa County 2009 Countywide Comprehensive Transportation Plan (CTP). As designated in the Contra Costa County 2009 Countywide CTP, multimodal transportation service objectives for the East County planning area indicate the following performance standards: • SR 4 and the SR 4 Bypass: Delay Index should not exceed 2.5 during the AM or PM Peak Period for these facilities; HOV lane utilization should exceed 600 vehicles per lane in the peak direction at peak hour. • Signalized Suburban Arterial Routes: Level of Service D (by Contra Costa County Transportation Authority Level of Service methodology).

Applicable Law	Description
	• All other Signalized Suburban Arterials: Peak hour volume to capacity ratio no worse than 0.85. • Rural Unsignalized Roadways: Level of Service D (by roadway segment). Traffic Management Plan (TMP) Sites: Roadway segments subject to a TMP may be analyzed using a measure other than Level of Service or V/C during TMP operations.
Contra Costa County Oversize Vehicle Permit	Contra Costa County requires a permit before operating any extra-legal loaded vehicles within the County.
City of Oakley General Plan Circulation Element	• Policy 3.1.1: Strive to maintain Level of Service D as the minimum acceptable service standard for intersections during peak periods (except those facilities identified as Routes of Regional Significance). • Policy 3.1.2: For those facilities identified as Routes of Regional Significance, maintain the minimum acceptable service standards specified in the East County Action Plan Final 2000 Update, or future Action Plan updates as adopted.
City of Oakley Long Range Roadway Plan	This Long Range Roadway Plan supports the determination of major roadway improvements that have been incorporated into the General Plan, and summarizes the analysis conducted to ensure that the roads adequately serve Oakley's growth. The Long Range Roadway Plan has adopted Level of Service D, or a volume-to-capacity (V/C) ratio of 0.90, as the threshold of acceptability for signalized intersections. Routes of Regional Significance are subject to special performance standards. The level of service established for a route of regional significance in Oakley is a peak hour Level of Service D at signalized intersections, and a peak hour Level of Service E for any individual movement at unsignalized intersections.
City of Oakley Transportation Permit	The city of Oakley's transportation permit requires approval from the Public Works Department before operating any oversized loads on city roads.

Source: Ex. 300, FSA

The evidence on this topic was undisputed. (3/15/11 RT 67-77, Exs. 1, § 5.12, 46, 50, 52, 55, 300, § 4.10.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The OGS site is located in Contra Costa County, California near the junction of State Route (SR) 4 and SR 160 in Oakley, California. The 21.95 -acre site is located in the southwestern corner of a larger parcel owned by E. I. du Pont de Nemours and Company (DuPont). Before a lot line adjustment that now identifies the project site as a separate parcel, the larger DuPont parcel was comprised of 210 acres.

The transportation network within the project vicinity consists primarily of city arterials, local roadways, and state-maintained freeways. The key roadways in the area include:

- SR 4/Main Street – An east-west highway that connects Contra Costa County to the San Francisco Bay Area to the west and San Joaquin County to the east. SR 4 joins SR 160 approximately one-half mile south of the OGS Project site. SR 4 is referred to as "Main Street" as it nears the project site. 2007 traffic counts published by Caltrans show that average daily traffic on SR 4 in the project vicinity was 39,000 vehicles per day. Truck traffic represents 5.4 percent of this total. (Exs. 1, p. 5.12-1, 300, p. 4.10-3.)[1]
- SR 160 – A north-south highway that connects Contra Costa County with Sacramento County by way of the Antioch Bridge. The highway becomes a two-lane road as is nears the project site. 2007 traffic counts published by Caltrans show that average daily traffic on SR 160 was 12,800 vehicles per day, with truck traffic representing approximately 6.5 percent of the total. (Exs. 1, p. 5.12-1, 300, pp. 4.10-3 - 4.10-4.)
- Bridgehead Road – A north-south roadway that provides direct access to the project site. There is no available data from Caltrans regarding average daily traffic, but evidence was presented suggesting that average daily traffic in 2007 was approximately 9,800 vehicles per day near Wilbur Avenue. (Exs. 1, p. 5.12-2, 300, p. 4.10-4.)
- Wilbur Avenue – An east-west roadway under the jurisdiction of the City of Antioch, which provides access to the project site by way of Bridgehead Road. This is a four-lane road between SR 160 ramps. There is no available data from Caltrans regarding average daily traffic, but evidence

[1] According to the evidence, the traffic counts might be artificially high due to increased traffic during the time period, which is associated with Pacific Gas & Electric Company's Gateway Station. (Ex. 1, p. 5.12-1.)

was presented suggesting that average daily traffic in 2007 was approximately 8,800 vehicles per day near the SR 160 ramps. (Exs. 1, pp. 5.12-1 - 5.12-2, 300, p. 4.10-4.)

Traffic and Transportation Figure 1 below depicts the regional transportation network.

Traffic and Transportation Figure 2 below shows the local transportation network in the project vicinity.

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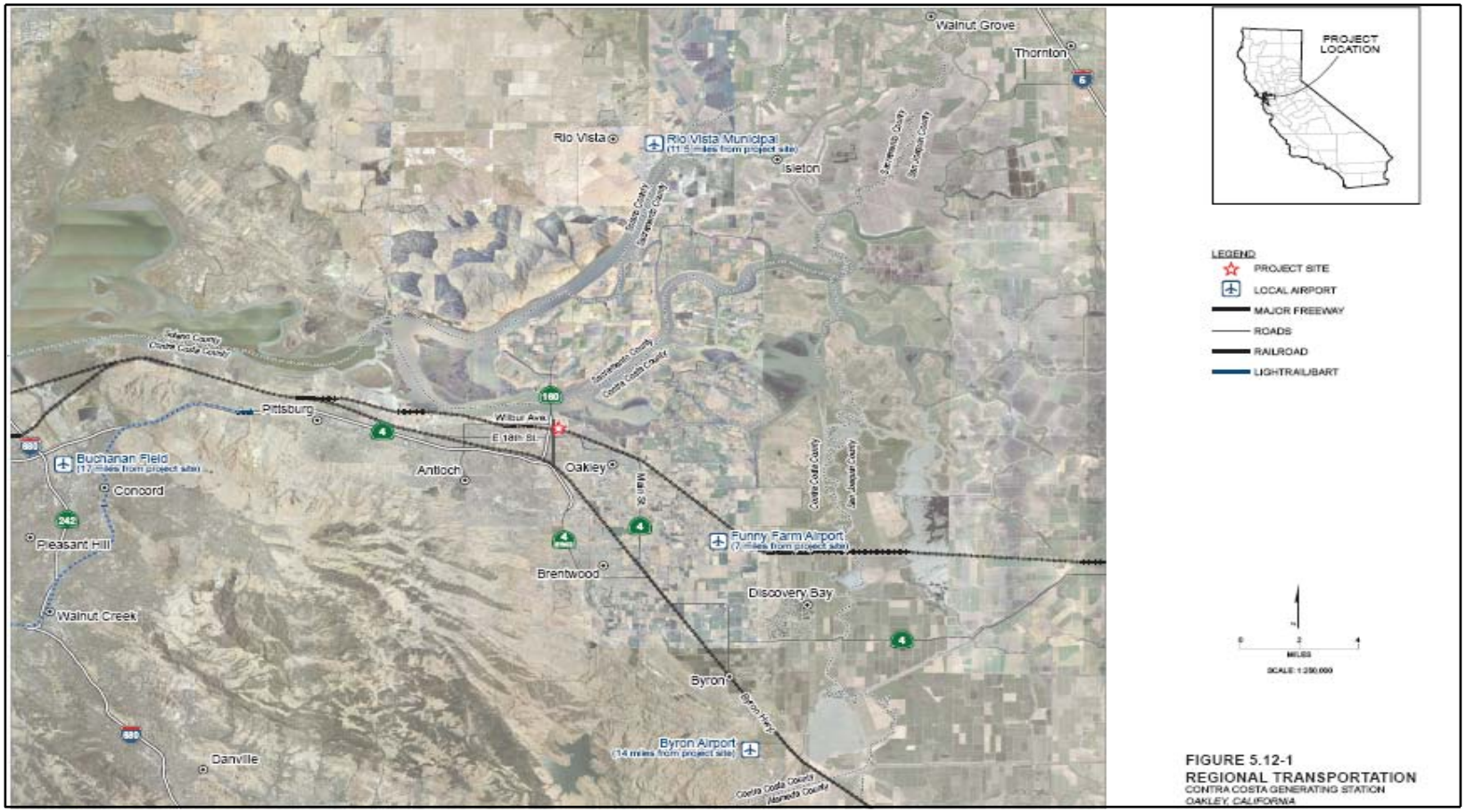
Traffic and Transportation Figure 1

Oakley Generating Station – Regional Transportation



Source: Ex. 1, AFC

Traffic and Transportation Figure 2
Oakley Generating Station – Local Transportation

Source: Ex. 1, AFC

1. Existing Levels of Service

The Applicant evaluated traffic impacts using the methodologies and guidance of the 2000 Highway Capacity Manual. The manual describes six levels of service (LOS) for multiple land highway and freeway segments. LOS is qualitative measure used to describe operational conditions within a traffic stream and quantify a level of congestion on a particular roadway or intersection considering factors such as speed, travel time, and delay. (Ex. 1, p. 5.12-9.)

According to the evidence, the City of Oakley uses LOS D as the threshold value to define maximum roadway segment capacity. LOS D is also the limit of acceptable delay for intersections within Oakley. (*Id*.) More particularly, the Oakley Long Range Roadway plan establishes LOS D at signalized intersections and LOS E for any individual movement at unsignalized intersections for a route of regional significance. Notably, SR 160 and SR 4/Main Street are designated as routes of regional significance in the Oakley General Plan.

Existing LOS for area roadway sections are shown below in **Traffic and Transportation Table 2**. The table summarizes existing LOS for local roadway segments during the morning peak period (7:00 a.m. to 9:00 a.m.) and afternoon peak period (4:00 p.m. to 6:00 p.m.) All of the locally-operated roadway segments operate at LOS D or better. The state-operated roadway segments operate at LOS C or better. (Exs. 1, pp. 5.12-2, 5.12-9; 300, pp. 4.10-6, 4.10-9.)

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Traffic and Transportation Table 2
Existing[1] Roadway Segment Level of Service Summary

Local Facilities					
Roadway	**Segment**	**ADT**		**LOS**	
Bridgehead Road	Between Shady Haven Trailer Park and Wilbur Ave.	9,500		D or Better	
Wilbur Avenue	Between SR 160 NB and SB ramps	10,600		D or Better	
State Facilities					
Roadway	**Segment**	**AM Peak Hour**		**PM Peak Hour**	
		V/C Ratio	**LOS**	**V/C Ratio**	**LOS**
SR 4 EB	Between Hillcrest Ave. and SR 160 junction	0.58	C	0.63	C
SR 4 WB	Between Hillcrest Ave. and SR 160 junction	0.53	B	0.49	B
SR 160 NB	Between SR 4 East junction and Wilbur Ave.	0.09	A	0.19	A
SR 160 SB	Between SR 4 East junction and Wilbur Ave.	0.16	A	0.14	A
SR 160 NB	Between Wilbur Ave. and Antioch Bridge	0.10	A	0.22	A
SR 160 SB	Between Wilbur Ave. and Antioch Bridge	0.19	A	0.16	A
SR 160 NB	Between Antioch Bridge and SR 12 junction	N/A	B	N/A	C
SR 160 SB	Between Antioch Bridge and SR 12 junction	N/A	C	N/A	B

Source: Ex. 300, FSA, OG 2009a, p. 5.12-8
Notes: [1] An annual growth factor of 1% was applied to adjust Caltrans traffic counts from 2007 to estimated 2009 levels.
N/A – Data not available
NB – Northbound; SB – Southbound; EB – Eastbound; WB – Westbound.

The Applicant analyzed the following six intersections within the project area:

- Main Street and SR 160 southbound (SB) Ramps (signalized)
- Main Street and SR northbound (NB) Ramps (signalized)
- Main Street and Bridgehead Road (signalized)
- Wilbur Avenue and SR 160 SB Ramps (unsignalized)
- Wilbur Avenue and SR 160 NB Ramps (unsignalized)
- Wilbur Avenue and Bridgehead Road (unsignalized) (Exs. 1, pp. 5.12-9 – 5.12-10; 300, p. 4.10-7.)

Under existing (pre-project) conditions, all study area intersections operate at LOS D or better, with the exception of the Main Street/Bridgehead Road

intersection, which currently operates at an unacceptable LOS E during the peak period. (Ex. 300, pp. 4.10-6 – 4.10-7.)

Existing LOS for the studied intersections shown below in **Traffic and Transportation Table 3**.

Traffic and Transportation Table 3
Existing (2009) Intersection Level of Service Summary

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay (Seconds)	LOS	Delay (Seconds)	LOS
Main St. and SR 160 SB Ramps	Signalized	22	C	24	C
Main St. and SR 160 NB Ramps	Signalized	16	B	32	C
Main St. and Bridgehead Rd.	Signalized	27	C	65	**E**
Wilbur Ave. and SR 160 SB ramps	Unsignalized	13	B	13	B
Wilbur Ave. and SR 160 NB ramps	Unsignalized	15	B	15	B
Wilbur Ave. and Bridgehead Rd.	Unsignalized	30	D	20	C

Source: Ex. 1, p. 5.12-8

Notes: Bold indicates unacceptable LOS.
NB – Northbound; SB – Southbound.

2. Construction Traffic Impacts

a. Roadway Segments and Intersections

Construction traffic will consist of both delivery/haul trucks and workers, some of whom will carpool. The Applicant's and Staff's assessments assume the average workforce vehicle occupancy will be 1.5 persons per vehicle. Truck and heavy equipment traffic were estimated using a passenger car equivalent (PCE) factor or 1.5 passenger cars per truck. No off-site traffic will be generated between the construction laydown and parking areas and the project site because these areas are immediately adjacent to the project site. (Exs. 1, p. 5.12-17; 300, p. 4.10-9.)

The Applicant evaluated possible construction traffic impacts under a worst-possible scenario that assumed the construction traffic during morning and evening peak construction periods, during the peak month of construction traffic (month 23). The evaluation assumes that traffic will originate as follows:

- Five percent of trips from Antioch.
- 25 percent from Sacramento and San Joaquin counties via SR 12.
- 35 percent from Contra Costa and San Joaquin counties via westbound SR 4.
- 35 percent from Contra Costa and Alameda counties via eastbound SR 4/northbound SR 160. (Ex. 1, p. 5.12-17.)

The Applicant's estimate of the total vehicle construction trip for the OGS project is shown below in **Traffic and Transportation Table 4**.

Traffic and Transportation Table 4
Project Construction Trip Generation – Peak Construction Period

	Average Daily Trips[1]	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
Construction Worker Vehicles	972	486	0	0	486
Delivery/Haul Trucks in PCE	120	8	8	8	8
Total Trips	*1,092*	*494*	*8*	*8*	*494*

Source: Ex. 300, FSA, OG 2009a, p.5.12-17.
Notes: [1] Includes trips occurring outside the AM and PM peak periods.

The evidence shows that the addition of project construction traffic to existing traffic volumes will not significantly impact the study area roadway segments. Nor will project-related construction traffic degrade any study area roadway segment to an unacceptable LOS performance standard. All local roadway segments will operate at LOS C during morning and evening peak traffic. (Ex. 300, p. 4.10-11.)

However, added project construction will temporarily result in significant delays at the following two intersections: Main Street/ Bridgehead Road and Wilbur Avenue/Bridgehead Road. Both intersections will degrade to LOS F. The Main Street/Bridgehead Road intersection impacts will occur during the afternoon peak. The Wilbur Avenue/Bridgehead Road intersection impacts will occur during the morning and afternoon peaks. The evidence shows that Main Street/Bridgehead Road is already at unacceptable LOS E during the afternoon peak. (Exs. 1, p. 5.12-23; 300, pp. 4.10-11 – 4.10-12.)

To reduce the impacts to these intersections to less than significant levels, we have adopted Staff-proposed Condition of Certification **TRANS-1**. This Condition requires the project owner to consult with the City of Oakley and prepare and submit to the Commission's Compliance Program Manager a Construction Traffic Control Plan and implementation program prepared in accordance with the

Caltrans Manual on Uniform Traffic Control Devices and the WATCH Manual. The Construction Traffic Control Plan must address issues that include but are not limited to the following:

- Adopt and implement provisions for monitoring intersection operations to ensure that construction-related vehicles must avoid the intersections of Main Street/Bridgehead Road (4:00 p.m. – 6:00 p.m.) and Wilbur Avenue/Bridgehead Road (7:00 a.m. – 9:00 a.m. and 4:00 p.m. – 6:00 p.m.) ensuring no deterioration of the existing LOS performance standard to minimize degradation of the LOS performance standard to the maximum extent feasible.
- Timing of heavy equipment and building materials deliveries.
- Specification of construction-related haul routes, avoiding residential neighborhoods to the maximum extent feasible.

We find that implementation of **TRANS-1** will ensure the all construction–related traffic will result in less than significant impacts along the roadways and intersections that will provide access to the OGS site.

b. Linear Facilities

The new sanitary sewer line will extend south along Bridgehead Road for for 0.33 miles to Main Street (SR 4). The line will then turn eastward and extend for 0.11 miles to the interconnection point with an existing Ironhouse Sanitary District gravity main. This work will take approximately one month and require temporary lane closures on Bridgehead Road and Main Street.

The transmission line upgrade will involve upgrading an existing PG&E 60-kV line to a new 230-kV line and replacing existing steel lattice towers with new monopoles. The new overhead line will cross over SR 160. PG&E has designated a pull-and-tensioning site in a vineyard just west of the highway crossing for transmission line stringing. The transmission-line stringing activities have potential to cause temporary lane and roadway closures and disruptions to BNSF rail line operations. However, because these impacts will be of short duration, they are not expected to significantly impact traffic flow. (Exs. 1, p. 3-1, Figure 3.2-1; 32, 300, p. 4.10-13.)

Implementation of **TRANS-1** (discussed above) will address potential impacts associated with construction of the sewer line and the transmission line upgrades and reduce them to less than significant levels by requiring the project owner to ensure that the Construction Traffic Control Plan includes elements that address

temporary closures to vehicle lanes, disruptions of BNSF rail line use, the use of traffic redirection and control measures, and access to residential and commercial property.

The evidence indicates that the project may need to obtain encroachment permits related to the construction of sewer and transmission lines. Condition of Certification **TRANS-4** requires the project owner to comply with Caltrans, Contra Costa County, City of Oakley, and other jurisdictions' limitations on vehicle sizes, weights, roadway encroachment, and travel routes and to obtain required permits.

Thus, we find that implementation of **TRANS-1** and **TRANS-4** will mitigate to less than significant levels any significant adverse temporary impacts to local traffic flows, BNSF rail line use, and access to private and commercial properties.

c. Transport of Hazardous Materials

As discussed in the **Hazardous Materials Management** section of this Decision, small quantities of hazardous materials will be delivered to the project site during the construction phase but aqueous ammonia is the only acutely hazardous substance that will be transported to and used at the OGS site. As discussed therein, delivery and disposal of hazardous materials to and from the site as well as handling of the materials on site must be performed according to all applicable state and federal standards. (See also, Exs. 1, pp. 5.12-23 – 5.12-25; 300, p. 4.10-17.)

3. Operation Impacts and Mitigation

During operations, the project is expected to require an average of 11 weekday workers. This will result in minimal vehicle trips to and from the site with no measurable impact on study area roadway segments and intersections. As a result, the Applicant did not conduct a quantitative traffic analysis for the long-term operations phase. Staff affirmed that operation impacts would not adversely affect anticipated traffic volumes. Based on these determinations and the above-discussed analyses regarding construction–related impacts, we find that operation-related traffic will not result in any significant impacts. (Exs. 1, p. 5.12-16; 300, p. 4.10-14.) No mitigation is required.

As discussed above regarding construction impacts and the **Hazardous Materials Management** section of this Decision, the OGS Project will use, and

require deliveries of, hazardous materials. These materials will be transported as hazardous materials or hazardous waste and their transport will be arranged with Caltrans and conducted according to relevant transportation regulations. The **Waste Management**, **Worker Safety and Fire Protection**, and **Hazard Materials** sections of this Decision further discuss the potential impacts relating to the project's use of hazardous materials. (Exs. 1, pp. 5.12-23 - 5.12-25; 300, p. 4.10-17.)

The transportation and handling of hazardous materials associated with the OGS Project could result in roadway hazards. However, the potential impacts can be mitigated to less than a significant level by complying with existing federal and state standards for transporting hazardous substances. For example, California has developed general requirements for transporting hazardous materials. In general, those requirements may be found in the California Vehicle Code sections 31301 through 32053. There are also federal regulations for transporting hazardous materials. The project owner is expected to comply with the applicable local, state, and federal regulatory framework as set forth above in **Traffic and Transportation Table 1**.

4. Hazards and Public Safety

There is potential for unexpected damage to roads by vehicles and equipment within study area that could result in a roadway hazard to the public. Furthermore, the construction of the required sanitary sewer line will require subterranean construction within both Bridgehead Road and Main Street. We therefore adopt Condition of Certification **TRANS-3**, which requires the project owner to repair roads damaged by project construction to their original condition. This will ensure that any damage to local roadways will not be a safety hazard to motorists. (Exs. 1, p. 5.12-25; 32; 300, p. 4.10-16.)

The use of oversize vehicles during construction can create a hazard to the public by limiting motorist views on roadways and by the obstruction of space. (Ex. 300, p. 4.10-16.) Implementation of Condition of Certification **TRANS-4** requires all OGS-related oversize vehicles used on public roadways during construction to comply with Caltrans, Contra Costa County, City of Oakley, and other relevant jurisdictions' LORS. (See **Traffic and Transportation Table 1** above for applicable LORS.)

At-grade railroad crossings can be another potential hazard to the public. However, there are no such crossings in the project vicinity. Instead, according to the evidence, there is a grade-separated crossing for the BNSF rail line

located approximately 750-feet south of the project site. The rail line provides commercial service to the area, handling 28 daily trains and is also used by Amtrak for the operation of eight to 10 passenger trains, with a stop in the City of Antioch. The line crosses Bridgehead Road and SR 160.

Thus, the evidence indicates that OGS construction- and operational-related vehicles accessing the project site from Bridgehead Road will have no impact on BNSF rail line operations. Nonetheless, to ensure that rail safety is not jeopardized by transmission line stringing activities, Condition of Certification **TRANS-1** requires the project owner's Construction Traffic Control Plan to identify any temporary disruptions to BNSF rail line operations during transmission line stringing activities. (Ex. 300, pp. 4.10-16 – 4.10-17.)

Thus, implementation of Conditions of Certification **TRANS-1**, **TRANS-3**, and **TRANS-4** will ensure that the OGS results in less than significant traffic- and transportation-related hazard and safety impacts and ensure project compliance with applicable LORS.

5. Alternative Transportation and Public Parking

The City of Oakley General Plan Circulation Element identifies two primary types of public bus transit: school bus service and Tri-Delta Transit service. School bus service operates on five routes and the Transit service operates six routes throughout Oakley. The Transit lines closest to the OGS site are the Rio Vista Delta Breeze Bus Route and Tri-Delta Transit Bus Route. The Rio Vista route is located approximately 1,500 feet west of the site and runs along SR 160 north of Main Street. The Tri-Delta route is located 2,000 feet south of the site and runs along Main Street east of SR 160. (Exs. 1, Figure 5.12-2; 300, p. 4.10-7.)

There are no designated bicycle routes within the immediate vicinity of the project site or project area. While sidewalks are provided in most of the new Oakley subdivisions, there are gaps in the pedestrian system including along Main Street in the project area. Thus, although it appears the neither construction nor operation will affect pedestrian and bicycle safety along local roadways used during construction, we require compliance with Condition of Certification **TRANS-1** (discussed above). The Construction Traffic Control Plan required by **TRANS-1** must include provisions that will ensure such safety along construction vehicle travel routes and identify safety procedures for exiting and entering the site access gate. (Exs. 1, p. 5.12-15; 300, pp. 4.10-7, 4.10-17 – 4.10-18.)

During construction, workers and construction vehicles will park at the project laydown area within the project site boundaries (Based on this, no on-street parking is anticipated or required during construction. Once operational, on-site parking will be provided for all employee and maintenance vehicles. Therefore, neither construction nor operation of the OGS will impact public parking resources serving the area. (Exs. 1, p. 5.12-25; 300, p. 4.10-17.)

6. Airport Operations

The nearest airport is Funny Farm Airport, located approximately seven miles southeast of the OGS site. This private airport is sited on 20-acres of land and has one runway. The airport serves about 50 aircraft per month.

The Rio Vista Municipal Airport is a public airport located approximately 11.5 miles northeast of the project site. It has two runways and a helipad. From about November 2007 to November 2008, the airport served an average of 96 aircraft per day. (Exs. 1, p. 5.12-15; 300, p. 4.10-8.)

The evidence also shows that the Applicant performed calculations as required by the Federal Aviation Administration (FAA) to determine if the project is exempt from FAA notification requirements. Federal Aviation Regulation Part 77 establishes requirements for determining the effect of proposed structures on air navigation. In general, the FAA must be notified if the height or outward or upward slope of the proposed structure exceeds certain restrictions or the structure proposed is more than 200 feet above ground level at the site, among other criteria. (Ex. 300, pp. 4.10-14 – 4.10-16.)

Staff reviewed the requirements for filing a Notice of Proposed Construction with the FAA and concurred with the Applicant's determination that submission of a Form 7460-1 is not necessary because (1) the tallest permanent structures associated with the OGS Project are the Heat Recovery Steam Generator stacks, which are 155-feet tall and (2) the OGS site is not within 20,000 feet of the nearest point of the nearest runway. (Exs. 1, p. 5.13-29; 300, pp. 4.10-14 – 4.10-15.)

Although no impacts to aviation activities would result from the project's physical, permanent structures, it appears that project construction could trigger the FAA requirement for marking and/or lighting or any temporary or permanent structure that exceeds an overall height of 200-feet above ground, if cranes exceeding 200-feet in height are used. (Ex. 300, p. 4.10-15.) In anticipation of the project's possible use of such a crane, we have adopted Condition of Certification

Condition of Certification **TRANS-2** requires all construction equipment exceeding 200-feet in height to adhere to FAA Advisory Circular 70/7460-1K Obstruction Marking and Lighting Requirements. Implementation of this condition will ensure that construction-related impacts to navigable airspace will be reduced to less than significant levels.

Based on the height of the HRSG stacks, the Applicant used the California Military Land Use Compatibility Analysis database to determine that the OGS site is not within 1,000 feet of a military installation, is located within military special use airspace, or located in a military designated low-level flight path. (Ex. 300, p. 4.10-15.)

7. Ground-Level Water Vapor Plumes

The exhaust from the project's main gas turbine/HRSG operation and wet cooling tower will result in thermal air plumes during project operation. The evidence describes thermal air plumes as upward clear air exhaust with the ability to impact low flying aircraft. No aircraft using the Funny farm Airport (7 miles from the site) and Rio Vista Municipal Airport (11.5 miles from the site) are expected to have low flying direct overflight of the project site. Furthermore, as shown by Staff's Visible Plume Modeling Analysis, visible water vapor plumes from the OGS Project gas turbine/HRSG exhausts are predicted to occur less than 20 percent of seasonal daylight clear hours. We therefore conclude that thermal and visible plumes associated with the OGS Project pose no significant hazard to aircraft. (Ex. 300, p. 4.10-15.)

The evidence also shows that the the project will not have any impact on low flying agricultural use aircraft because the nearest agricultural land use to the OGS site are vineyards to the east and south, which do not typically use low flying crop dusting aircraft. (Ex. 300, pp. 4.10-16 – 4.10-17.)

Staff's Visual Plume Modeling Analysis also establishes that visible plumes are expected to occur less than 20 percent of seasonal daylight clear hours. (Ex. 300, p. 4.10-17, Appendix VR-2 (Visible Plume Modeling Analysis).) No ground fogging plumes are predicted to reach adjacent roadways. As a result, the OGS Project will have no plume-related impacts on ground traffic safety.

8. Emergency Services Vehicle Access.

If an emergency occurs at the OGS site during construction, then emergency vehicles will use the proposed driveway on Bridgehead Road to access the project site. To ensure access for emergency vehicles into and surrounding the facility during project construction, we adopted Condition of Certification **TRANS-1**, which requires the project owner's Construction Traffic Control Plan to include the assurance of access and movement of emergency vehicles in and around the project site. Implementation of this condition will ensure less than significant impacts to emergency vehicle access during construction.

The **Worker Safety and Fire Protection** section of this Decision contains a more detailed discussion of emergency services concerning adequate access to the OGS site.

9. Local and Regional Transportation Plans

The Applicant and Staff identified the Contra Costa 2009 Countywide CTP as a plan that describes planned transportation improvements within the county. There is no evidence that traffic and transportation associated the OGS project will conflict with this or any other regional plan.

According to the evidence, the Contra Costa County 2009 Countywide CTP thresholds identify LOS D for both signalized suburban arterial routes and rural unsignalized roadways. No specific thresholds are identified in the Countywide CTP for intersection LOS in the East County planning area of the CTP. As shown in Traffic and Transportation Table 6, study area roadway segments will not exceed LOS D with the addition of the project peak construction traffic as compared to without project conditions. As discussed above, the OGS would result in minimal operational vehicle trips to and from the site. As project operations would result in minimal daily traffic on study area roadway segments and intersections, no degradation to existing LOS performance standards of street segment serving the project site will occur from project operations. Therefore, less than significant impacts to CMP performance standards for designated roadways would occur from construction or operational-related project traffic. (Ex. 300, p. 4.10-14.)

10. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. “Cumulatively considerable” refers to the incremental effects of an individual project are significant when viewed in connection with the effects of (1) past projects; (2) other current projects; and (3) probable future projects. (Cal. Code Regs., tit.14, § 15130.)

According to the evidence, continued development of the City of Oakley has contributed to congestion on study area roadways. One project that could impact traffic conditions from a cumulative perspective in the vicinity of the OGS site is the River Oaks Crossing, which is proposed on property south of the project site and BNSF railroad tracks. However, there is no known construction date for this project and it is unclear whether construction River Oaks Crossing would overlap with OGS construction. For this reason, neither Staff nor the Applicant evaluated cumulative impacts of this project with the OGS Project. (Exs. 1, p. 5.12-25, 300, p. 4.10-18.) Based on the requirements of the local LORS, we anticipate that the City of Oakley would impose feasible traffic-related mitigation measures on future development projects in the project vicinity (including River Oaks Crossing) to ensure that cumulative impacts are reduced to less than significant levels.

Additionally, the Marsh Landing Generating Station (MLGS) was approved by the Energy Commission on August 25, 2010. MLGS involves construction of a new power plant in Antioch, northwest of the OGS project site. Construction is expected to begin during the first quarter of 2011. Based on this start date and estimated construction duration of 27 months, it is likely that construction traffic of this project will combine with OGS related construction traffic. Staff’s review of the MLGS Final Staff Assessment and Presiding Member’s Proposed Decision leads Staff to conclude that construction and operational traffic associated with MLGS was analyzed and anticipated to be concentrated along the roadway segments of SR 4 at Willow Pass Road intersection, SR 160 at Wilbur Avenue, Wilbur Avenue between Vera Avenue and Fleming Avenue, and Wilbur Avenue between Fleming Avenue and SR-160 Southbound ramp. As such, Staff determined that traffic associated with MLGS would be concentrated west of SR 160 and is not expected to add cumulatively to OGS related traffic volumes on Main Street and Bridgehead Road (as discussed above), which would occur east of SR 160.

The evidence further indicates that cumulative use of SR 160 northbound and southbound on/off ramps at Wilbur Avenue by MLGS and OGS during

construction could result in intersection impacts but for the mitigation measures imposed on the MLGS and OGS. For instance, peak MLGS-related construction traffic is predicted to generate 457 daily trips with primary access to the site being the SR 160/Wilbur Avenue ramps. However, as explained by Staff, all MLGS construction workers must arrive during off-peak traffic periods; before 7 AM and after 9 AM. Workers would leave the site before or after the PM peak period. The incorporation of this condition as part of the approved MLGS ensures that minimal daily construction related traffic would combine with OGS construction traffic at SR 160 northbound and southbound on/off ramps during the AM and PM peak periods. Therefore, cumulative impacts would not occur and no change to SR 160 northbound and southbound on/off ramps LOS would occur.

The evidence indicates that cumulative impacts resulting from operational traffic are unlikely, due to the minimal number of vehicle trips that the OGS Project would generate. (Ex. 1, p. 5.12-26.)

Furthermore, part of the City of Oakley Traffic Impact Fee Program is the Regional Transportation Development Impact Mitigation Fee, which is intended to finance roadway improvements to reduce the impacts cause by future development in the City. In an April 7, 2010, Cooperation and Community Benefits Agreement between the Applicant and the City of Oakley, the project owner agreed to contribute over $3 million to the City for future traffic-related improvement projects, including several citywide roadway improvements. (Ex. 300, p. 4.10-18.)

Thus, we find that the OGS Project will not result in cumulative construction or operation traffic or transportation impacts, with implementation of the OGS Project Conditions of Certification, traffic and transportation-related MLGS Conditions of Certification, the project owner's compliance under the above-referenced Cooperation and Community Benefits Agreement, and the City's imposition of traffic-related mitigation measures on future development projects in the project vicinity.

11. Compliance with LORS

Traffic and Transportation Table 1 above identifies the applicable federal, state, and local LORS pertaining to traffic and transportation with which the project is required to comply and also summarizes how the project will achieve compliance. We have evaluated the Applicant's and Staff's assessment of LORS

compliance and find that Staff's compliance summary – replicated below in **Traffic and Transportation Table 5** – adequately reflects the evidence of record. (Exs. 1, § 5.12; 300, pp. 4.10-20 – 4.10-24.)

Traffic and Transportation Table 5
Project Compliance with Adopted Traffic and Transportation Laws, Ordinances Regulations, and Standards

Applicable Law	LORS Description and Project Compliance Assessment
Federal	
Title 14, CFR, section 77 (14 CFR 77)	Includes standards for determining physical obstructions to navigable airspace. Sets forth requirements for notice to the Federal Aviation Administration of certain proposed construction or alterations. Also provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace (including temporary flight restrictions).
	The proposed project would not include any permanent structures taller than 200 feet and would not be within 20,000 feet of any airport. Therefore, no impacts to aviation activities would occur from project physical structures, and completion of FAA Form 7460 or an applicant secured FAA Determination of No Hazard to Navigable Airspace is not required. In the event any construction equipment would exceed 200-feet in height, Condition of Certification **TRANS-2** would ensure that FAA Advisory Circular 70/7460-1K Obstruction Marking and Lighting requirements pertaining to such are adhered to.
State	
California Vehicle Code, division 2, chapter 2.5; div. 6, chap. 7; div. 13, chap. 5; div. 14.1, chap. 1 & 2; div. 14.8; div. 15	Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
	Staff is proposing Condition of Certification **TRANS-4,** which would require that all oversize vehicles used on public roadways during construction comply with Caltrans limitations on vehicle sizes and weights.
California Streets and Highway Code, division 1 & 2, chapter 3 & chapter 5.5	Includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits.
	Staff is proposing Condition of Certification **TRANS-3,** which would require that any road damaged by project construction be repaired to its original condition.
California Street and Highway Code §§117, 660-711	Requires permits from California Department of Transportation (Caltrans) for any roadway encroachment during oversize truck transportation and delivery. Such encroachment permits are also needed for roads that would include construction from new sewer line connections or be crossed by overhead transmission line stringing, as well as for parallel roads where transmission line construction activities would require the use of any public right-of-way (e.g., temporary lane closures).
	Staff is proposing Condition of Certification **TRANS-4,** which would require that any encroachment on public right of way during construction obtain all necessary Caltrans permits required for these actions.

California Street and Highway Code §§660-711	Requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.
	Staff is proposing Condition of Certification **TRANS-4,** which would require that all oversize vehicles used on public roadways during construction comply with Caltrans limitations on vehicle sizes and weights.
Local	
Contra Costa County 2009 Countywide Comprehensive Transportation Plan	The Contra Costa County 2009 Countywide CTP, multimodal transportation service objectives indicate the following performance standards: • SR 4 and the SR 4 Bypass: Delay Index should not exceed 2.5 during the AM or PM Peak Period for these facilities; HOV lane utilization should exceed 600 vehicles per lane in the peak direction at peak hour. • Signalized Suburban Arterial Routes: LOS D (by Contra Costa County Transportation Authority LOS methodology). • All other Signalized Suburban Arterials: Peak hour volume to capacity ratio no worse than 0.85. • Rural Unsignalized Roadways: LOS D (by roadway segment). • Traffic Management Plan (TMP) Sites: Roadway segments subject to a TMP may be analyzed using a measure other than LOS or V/C during TMP operations.
	As shown in **Traffic and Transportation Table 6**, all study area roadway segments would operate at LOS D or greater during construction. Project operations would have no impacts to exiting LOS performance standards of study area roadway segments and intersections. Therefore, the proposed project would be consistent with this Plan.
Contra Costa County Oversize Vehicle Permit	Contra Costa County requires a permit before operating any extra-legal loaded vehicles within the County.
	Staff is proposing Condition of Certification **TRANS-4,** which would require that all oversize vehicles used on public roadways during construction comply with Contra Costa County limitations on vehicle sizes and weights.
City of Oakley General Plan Circulation Element	• Policy 3.1.1: Strive to maintain Level of Service D as the minimum acceptable service standard for intersections during peak periods (except those facilities identified as Routes of Regional Significance). • Policy 3.1.2: For those facilities identified as Routes of Regional Significance, maintain the minimum acceptable service standards specified in the East County Action Plan Final 2000 Update, or future Action Plan updates as adopted.
	As shown in **Traffic and Transportation Table 6**, all study area roadway segments identified as Routes of Regional Significance would operate at LOS D or greater during construction. However, as shown in **Traffic and Transportation Table 7**, construction traffic associated with the project would temporarily result in significant delays at both the intersections of Main Street/Bridgehead Road (PM peak hour) and Wilbur Avenue/Bridgehead Road (both AM and PM peak hours). LOS at these intersections during the peak hour indicated will degrade to an unacceptable LOS. Condition of Certification **TRANS-1** would reduce temporary construction traffic impacts to these intersections. However, during construction the proposed project would be temporarily inconsistent with city of Oakley General Plan policy 3.1.1.

	Project operations would have no impacts to existing LOS performance standards of study area roadway segments and intersections. It should be noted that under existing conditions, the intersection of Main Street/Bridgehead Road operates at an unacceptable LOS E during the PM peak hour.
City of Oakley Long Range Roadway Plan	The Long Range Roadway Plan has adopted LOS D, or a volume-to-capacity (V/C) ratio of 0.90, as the threshold of acceptability for signalized intersections. Routes of Regional Significance are subject to special performance standards. The level of service established for a route of regional significance in Oakley is a peak hour LOS D at signalized intersections, and a peak hour LOS E for any individual movement at unsignalized intersections.
	As shown in **Traffic and Transportation Table 7**, construction traffic associated with the project would temporarily result in significant delays at both the intersections of Main Street/Bridgehead Road (PM peak hour) and Wilbur Avenue/Bridgehead Road (both AM and PM peak hours). LOS at these intersections during the peak hour indicated will degrade to an unacceptable LOS. Condition of Certification **TRANS-1** would reduce temporary construction traffic impacts to these intersections. However, during construction the proposed project would be temporarily inconsistent with the city of Oakley Long Range Roadway Plan performance standards. Project operations would have no impacts to exiting LOS performance standards of study area roadway segments and intersections. It should be noted that under existing conditions, the intersection of Main Street/Bridgehead Road operates at an unacceptable LOS E during the PM peak hour.
City of Oakley Transportation Permit	The city of Oakley's transportation permit requires approval from the Public Works Department before operating any oversized loads on city roads.
	Staff is proposing Condition of Certification **TRANS-4,** which would require that all oversize vehicles used on public roadways during construction comply with City of Oakley limitations on vehicle sizes and weights.

FINDINGS OF FACT

1. During the construction and operation phases, local roadway and highway demand resulting from the daily movement of workers and materials will not increase beyond significance thresholds established by local LORS.

2. With the conditions of certificate, the OGS Project will comply with all applicable LORS related to traffic and transportation

3. The OGS will not significantly degrade the level of service on local streets or highways.

4. The nearest airport is Funny Farm Airport, located approximately seven miles southeast of the OGS site. The Rio Vista Municipal Airport is a

public airport located approximately 11.5 miles northeast of the project site. The tallest permanent structures associated with the OGS Project are the Heat Recovery Steam Generator stacks, which are 155-feet tall. They do not exceed the FAA's 200-foot requirement and will not adversely impact aviation safety. Even so, Condition of Certification **TRANS-2** requires the project owner to ensure that temporary construction equipment that exceeds 200-feet in height be lighted and marked pursuant to FAA requirements.

5. Condition of Certification **TRANS-1** requires the project owner to consult with the City of Oakley in preparing a construction traffic control plan to ensure that all construction traffic does not significantly affect traffic on any local roads, intersections, or access to adjoining and neighboring sites.

6. Condition of Certification **TRANS-3** requires the project owner to implement a mitigation plan to repair any roadway damage caused by project construction activities.

7. Compliance with Conditions of Certification **TRANS-1** through **TRANS-4** will ensure that the OGS Project complies with applicable LORS.

8. The OGS as proposed and with implementation of the conditions of certification would not result in significant direct, indirect or cumulative traffic and transportation impacts, and therefore, would have no environmental justice issues.

CONCLUSIONS OF LAW

1. The OGS Project would be consistent with the Circulation Element in the City of Oakley General Plan, local circulation plans and policies and all other applicable laws, ordinances, regulations, and standards.

2. The OGS Project will not have a significant adverse impact on the local and regional road/highway network.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall consult with the city of Oakley and prepare and submit to the Compliance Project Manager (CPM) for approval a Construction Traffic Control Plan and implementation program. The Construction Traffic Control Plan must be prepared in accordance with Caltrans Manual on Uniform Traffic Control Devices and the WATCH Manual and must include but not be limited to the following issues:

- Construction-related vehicles other than local Oakley or Brentwood residents shall avoid the intersections of Main Street/Bridgehead Road (4:00 PM – 6:00 PM) during peak periods of construction. The intersection of Wilbur Avenue/Bridgehead Road shall be either avoided or a flagman provided during peak periods of construction between 7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM to reduce further degradation of the LOS performance standard
- Temporary closure of travel lanes or disruptions to street segments, intersections, or BNSF rail line operations during transmission line stringing activities or any other utility tie ins
- Timing of heavy equipment and building materials deliveries
- Specification of construction-related haul routes, avoiding residential neighborhoods to the maximum extent feasible, and including the location of borrow or fill areas, the estimated number and frequency of trips, and the proposed schedule of hauling
- Redirecting construction traffic with a flag person or temporary restriping if required
- Signing, lighting, and traffic control device placement if required
- Ensurance of access for emergency vehicles into the project site and through any construction-related temporary travel lane closures or disruptions
- Ensurance of pedestrian and bicycle safety from construction vehicle travel routes and any construction-related temporary travel lane closures or disruptions
- Procedures for exiting and entering the site
- Access to residential and/or commercial property located near transmission line routes or any other utility tie-ins and any construction-related temporary travel lane closures or disruptions

Verification: At least 30 days prior to site mobilization, the project owner or contractor shall provide the Construction Traffic Control Plan to the CPM for review and approval.

TRANS-2 The project owner shall ensure that all temporary construction equipment over 200-feet in height shall have lighting and marking consistent with FAA Advisory circular 70/7460-1 K, Obstruction Marking and Lighting, 34 (Markers) for temporary construction equipment so not to create a hazard to air navigation

Verification: In the event construction equipment over 200-feet in height is to be utilized, the project owner shall submit FAA Form 7460-2, Notice of Actual Construction or Alteration, to the FAA at least 10 days prior to start of construction (7460-2, Part I) and within 5 days after the construction reaches its greatest height (7460-2, Part II), showing consistency with FAA Advisory Circular 70/7460-1K Obstruction Marking and Lighting requirements for temporary construction equipment. A copy of these forms shall be provided to the CPM.

TRANS-3 Following completion of project construction, the project owner shall repair any damage to roadways affected by construction activity along with the primary roadways identified in the traffic control plan for construction traffic to the road's pre-project construction condition. Prior to the start of construction, the project owner shall photograph, videotape, or digitally record images of the roadways that will be affected by all utility line construction and heavy construction traffic. The project owner shall provide the CPM, city of Oakley, Contra Costa County, and/or Caltrans with a copy of the images for the roadway segments under its jurisdiction. Also prior to start of construction, the project owner shall notify the city, Contra Costa County, and/or Caltrans about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction-related activities associated with other projects.

Verification: Within 30 days after completion of the project, the project owner shall meet with the CPM and city of Oakley to determine and receive approval for the actions necessary and schedule to complete the repair of identified sections of public roadways to original or as near-original condition as possible. Following completion of any regional road improvements, the project owner shall provide to the CPM a letter from Contra Costa County, Caltrans, or other relevant jurisdiction if work occurred within its jurisdictional public ROW stating its satisfaction with the road improvements.

TRANS-4 The project owner shall comply with Caltrans, Contra Costa County, city of Oakley, and other relevant jurisdictions limitations on vehicle sizes, weights, roadway encroachment, and travel routes and obtain any permits required for these actions.

Verification: In the Monthly Compliance Reports, the project owner shall indicate that all required permits were obtained and list the jurisdictions they were acquired from, or indicate if no permits were necessary, during that reporting period. In addition, the project owner shall retain copies of all acquired permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-5 The project owner shall coordinate with the city of Oakley and pay the applicable Traffic Impact Fee (authorized by Ordinance No. 14-00, adopted by Resolution 49-03) and the Regional Transportation Development Impact Mitigation Fee or any future alternative regional fee adopted by the City (authorized by Ordinance No. 14-00, adopted by Resolution No. 73-05).

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manager (CPM) proof of payment of the Traffic Impact Fee (authorized by Ordinance No. 14-00, adopted by Resolution 49-03) and the Regional Transportation Development Impact Mitigation Fee or any future alternative regional fee adopted by the City (authorized by Ordinance No. 14-00, adopted by Resolution No. 73-05).

C. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

This topic reviews pertinent demographic information within both a one-mile and six-mile radius of the OGS Project site and evaluates the effects of project-related population changes on local schools, medical and fire protection services, public utilities and other public services, as well as the fiscal and physical capacities of local government to meet those needs. The public benefits of the project are also reviewed, including both the beneficial impacts on local finances from property and sales taxes as well as the potential adverse impacts upon public services. The evidence for this topic was undisputed on all matters except environmental justice. (3/15/11 RT 67-77; Exs. 1, § 5.10, Appendix. 5.10, 55; 300 § 4.8, 401.)

In this part of the Decision we determine that the project will not result in a substantial impact under CEQA with respect to population and housing in that the project will not:

- Induce substantial population growth in a new area, either directly or indirectly.
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

Nor will the project result in significant impacts to public services or recreations facilities because it will not:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives.
- Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. (CEQA Guidelines, Appendix G.)

As a result we find that the OGS Project will comply with all applicable laws, ordinances, regulations, and standards (LORS) (identified below in **Socioeconomics Table 1**) and will not result in any significant environmental impacts.

Socioeconomics Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

State	
California Education Code, Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
California Government Code, Sections 65996-65997	Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.
Local	
City of Oakley Park Land Dedication In-Lieu Fee (Ordinance No. 03-03)	The Park Land Dedication was enacted pursuant to authority granted by Section 66477 of the Government Code of the State of California ("Quimby Act").
City of Oakley Park Impact Fee (Authorized by Ordinance No. 05-00, adopted by Resolution No. 19-03)	The Oakley City Council has determined that a park impact fee is needed to finance public facilities and to pay for each development's fair share of the construction and acquisition costs of improvements.
City of Oakley Public Facilities Fee (Authorized by Ordinance No. 05-00, adopted by Resolution No. 18-03)	The Oakley City Council has determined that a public facilities impact fee is needed to finance public facilities and to pay for each development's fair share of the construction and acquisition costs of improvements.
Fire Facilities Impact Fee (Ordinance No. 09-01)	The Oakley City Council has determined that a fire impact fee is needed to finance those fire-fighting facilities and to pay for each development's fair share of the construction and acquisition costs of those improvements.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The project facility will be sited on the land within the City of Oakley in Contra Costa County, California. The project's linear facilities will traverse land within the City of Antioch, California. Contra Costa County is one nine Bay Area Counties. The three most populated cities within Contra Costa County are Concord, Richmond, and Antioch.

2. Impacts of Construction and Operation Workforce

The 33-month construction phase is the primary focus of this analysis because the potential influx of workers and their dependents into the area could increase demand for community resources.

The average number of construction workers would range from 24 workers in the first month to a maximum of 729 in the 23rd month. There would be an average of 303 on-site construction workers. In addition, construction of a sanitary sewer force main would involve up to 10 additional workers during the first six months of the construction period. Project operation will require 22 full-time employees.

There appears to be a large labor force within two hours commuting time of the project site and it is therefore unlikely that employees will relocate near the project. The evidence indicates that that the operations workforce already resides within and will commute from Contra Costa County. (Exs. 1, pp. 5.10-8, 5.10-12; 300, p. 4.8-7.)

We therefore find that the construction and operation workforce will not induce substantial growth or concentration of population and the project will not encourage workers to permanently move into the area. Consequently, the project would have no direct or indirect impact on substantial population growth in the area.

3. Impacts on Housing

The evidence documents housing availability in Contra Costa County. As of January 1, 2009, there were 399,187 units. New housing authorizations in Contra Costa County in 2007 totaled 3.607 units and of these, about 75 percent were single-family units and about 25 percent were multi-family units. During the 1990s, the County vacancy rate averaged three percent and remained at the level from 2000 to 2009. The City of Oakley vacancy rate averaged three percent in 2009. Thus, housing supply in the region is deemed limited based on the federal standard vacancy rate of five percent. (Exs. 1, p. 5.10-2.) However, because we anticipate that most workers will commute to the site on a daily basis, there is no evidence that project construction or operation will adversely impact local housing or require new housing construction. Furthermore, because the project will be built within a primarily existing occupied vineyard, it will not displace existing housing or necessitate construction of replacement housing elsewhere. (Ex. 300, pp. 4.7-4.8-8.)

The evidence also establishes adequate available short-term housing for construction workers. In addition to apartments and other rental housing, there are 67 hotels/motels with 6,363 rooms in Contra Costa County that could be used for temporary housing. A number of recreational vehicle parks are also within Oakley and neighboring cities close to the project. (Exs. 1, pp. 5.10-2 – 5.10-6, 5.10-16; 300, p. 4.8-7.)

As a result, we find that the project would not displace anyone or require construction of additional housing.

4. Impacts to Government Facilities

There is no evidence that the OGS Project will adversely impact emergency medical services, police protection, schools, parks, or any other public facilities (i.e., utilities) because the workforce will be commuting rather than moving to the area.

a. Emergency Medical Services

The project is within the jurisdiction of the East Contra Costa Fire Protection District (ECCFPD). ECCFPD's services include emergency medical services, fire suppression and prevention, fire investigations, fire code maintenance inspections, and public education presentations. ECCFPD has three fire stations serving the project area. The primary responder is Station 93, which is located three miles from the OGS site. Additional support would be provided by Stations 81 (three miles from the site) and 88 (five miles from the site). The response time from any of these stations is approximately seven minutes. If necessary, mutual aid would be provided by other ECCFPD stations. (Ex. 1, p. 5.10-10.)

The ECCFPD HazMat Team is the first responder to incidents involving hazardous materials. The HazMat Team has 21 specialists and is stationed at 4333 Pacheco Boulevard, Martinez, California. The response time is half an hour during the day and one hour if the incident occurs during off hours. There are mutual aid agreements HazMat at Richmond and San Ramon Fire Departments. (Exs. 1, p. 5.10-10; 300, p. 4.8-8.)

All employees suffering trauma injuries from the OGS Project would be transported by helicopter to John Muir Medical Center in Walnut Creek, California. The center is located 26 miles from the project and is designated as a Level II Trauma Center for Contra Costs County. Sutter Delta Medical Center (a

Level II Trauma Center) is 5.5 miles from the project site and Kaiser Permanente Walnut Creek Medical Center is 27 miles from the site. Kaiser's emergency department has 52 private treatment rooms and is capable of handling mass decontamination for chemical incidents. (Exs., 1, p. 5.10-10; 300, pp. 4.8-8 – 4.8-9.)

The evidence establishes that the emergency medical services provided by ECCFPD and the local hospitals will not require construction of new facilities or physical alteration of existing facilities. (Exs. 1 pp. 5.10-10 – 5.10-11; 300, p. 4.8-9.) Furthermore, the **Worker Safety and Fire Protection** and **Hazardous Material Handling** sections of this Decision provide further discussion relating to the provision of emergency fire and medical services to the project and how the design of the OGS facility will meet all applicable standards to reduce the risk of accidental hazardous materials release and operate in a matter that complies with applicable safety practices. We find that the project owner's implementation of required safety procedures and employee training will minimize potential unsafe work conditions and the need for outside emergency medical response.

We therefore find that the project will not result in significant impacts to the provision of emergency medical services. As more fully discussed below under Compliance with LORS, we note that the project owner will be required to comply with City of Oakley Fire Facilities Impact Fee (Ordinance No. 09-01) and Public Facilities Fee (Ordinance No. 05-00) and make payments to offset development-related impacts to the City's provision of public services. Condition of Certification **SOCIO-1** ensures that the project owner pays these required fees.

b. Law Enforcement

OGS is within the jurisdiction of the Oakley Police Department (OPD), which has 5 full-time officers. OPD operates one station, which is located approximately 1.8 miles from OGS. OPD's response time to incidents at OGS would be two to six minutes. (Ex. 1, p. 5.10-10; 300, p. 4.8-9.)

Traffic-related incidents on state highways and roads are within the jurisdiction of the California Highway Patrol. The CHP office nearest to OGS is approximately 20 miles away in Martinez, California. (Ex. 300, p. 4.8-10.)

The evidence indicates that power plants do not attract large numbers of people and therefore require little in the way of law enforcement services. (Ex. 300, p. 4.8-10.) Even though the site will not be publicly accessible, this Decision

requires the project owner to implement facility safety and security measures (see, e.g., **Hazardous Materials Handling** Condition of Certification **HAZ-7**) to ensure site security and minimize the need for law enforcement involvement. Thus, we find that construction and operation of the project will not require new or physically altered law enforcement facilities or otherwise result in significant impacts to the provision of law enforcement services.

c. Schools

The OGS Project site is within the jurisdiction of the Antioch Unified School District (AUSD). Data regarding AUSD's 2008-2009 school year shows that there were 28 schools within the District with an aggregate enrollment of 166,958 students. (Exs. 1, p. 5.10-9; 300, p. 4.8-10.)

As discussed above, construction workers and their families are not expected to relocate to the project vicinity. Even though the Applicant anticipates hiring from within the region and no operation workers are expected to relocate, Staff considered a worst-case scenario where all 22 full-time operation workers would relocate to Oakley. The evidence establishes however, that such relocation would have little or no impacts on AUSD assuming an average family size of 2.72 persons per household. Under this worst-case scenario, the project would add approximately 16 school children (assuming a two-parent household) to the schools within AUSD. The evidence establishes that there are a sufficient number of schools within AUSD to accommodate this increase. We therefore find that project construction and operation will not have a significant impact on AUSD schools.

d. Recreational Facilities

The Contra Costa County Department Parks and Recreation maintains various community parks, off-road parks, and fishing areas and sponsors special activities. Park amenities include playgrounds, picnic tables/barbeques, and volleyball and basketball courts. (Ex. 300, p. 4.8-11.)

Given the above-discussed projections for a commuting labor force and evaluation of a worst-case scenario in which 22 operation workers would relocate to Oakley, the project will not require or contribute to the need for construction of new parks. Nor will it substantially increase the use of existing parks.

We therefore find that the addition of OGS's construction and operation workforce will not have a significant adverse impact on parks and recreation. Nonetheless, as more fully discussed below under Compliance with LORS, we note here that the project owner must comply with the City of Oakley Park and Land Dedication In-Lieu Fee (Ordinance No. 03003) and Park Impact Fee (Ordinance No. 05-00) and make payments to the City to offset development-related impacts to the City's recreational facilities. Condition of Certification **SOCIO-1** ensures that the project owner pays these required fees.

e. Utilities

There is no evidence that the project workforce will lead to significant adverse demands on the adequate water, sanitary sewer, electricity, or natural gas supplies. (Ex. 1, pp. 5.10-11, 5.10-18.)

5. Environmental Justice

Section 65040.12 (c) of the Government Code defines "environmental justice" as the "fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." For each power plant proposal, Staff evaluates the Project's potential impacts on minority and low-income (below poverty level) populations in the project vicinity. The record contains Staff's demographic screening conducted in accordance with the "Final Guidance for Incorporating Environmental Justice Concerns in U.S. EPA's National Environmental Policy Act (NEPA) Compliance Analysis" (EPA 1998).

Minority populations are identified by the U.S. EPA for environmental justice review when:

- The minority population of the affected area is greater than 50 percent of the affected area's general population; or
- The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis; or
- One or more census blocks in the affected area have a minority population greater than 50 percent.

Minority groups include: American Indian or Alaskan Native; Asian or Pacific Islander; African American not of Hispanic origin; or Hispanic. Low-income

populations are identified by the annual statistical poverty thresholds from the Bureau of the Census's Current Population Reports on Income and Poverty. (Ex. 300, p. 4.8-3.)

According to Staff, Census 2000 information for the Project vicinity indicates that the minority populations by census block (the smallest geographic unit for which the Census Bureau collects and tabulates data) within a six-mile radius of the project site is 57,477 persons or about 42 percent of the total population. The total population in the identified study area is 138,443 persons (Ex. 300, p. 4.8-3.) **Socioeconomics Figure 1** below shows the location of the minority populations within six-miles of the project site.

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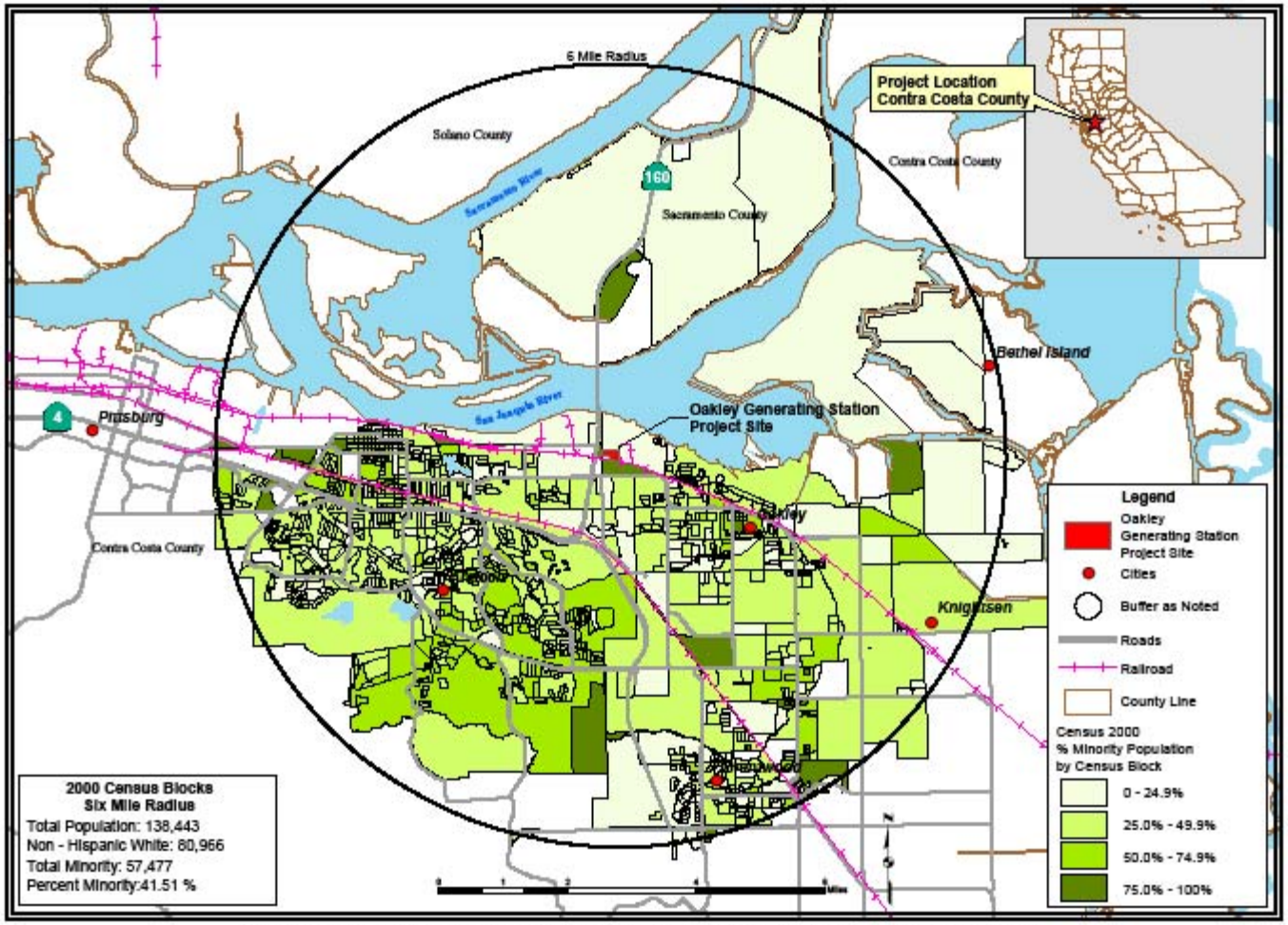
SOCIOECONOMICS - FIGURE 1

Oakley Generating Station - Census Minority Population by Census Block - Six Mile Radius



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: ESRI and Tele Atlas Data - California Energy Commission Statewide Power Plant Maps 2010 - Census 2000 PL 94-171 Data

Staff also identified the below-poverty-level population based on Year 2000 U.S. Census block group data within a six-mile radius of the project site. Poverty status excludes institutionalized people, people in military quarters, people in college dormitories, and unrelated individuals under 15 years old. The below-poverty-level population within a six-mile radius of the OGS project consists of approximately 7.85 percent of the total population in that area or approximately 10,145 people. (Ex. 300, p. 4.8-3.)

Based on this information, we find that the minority population does not exceed 50 percent of the population in the project vicinity. Thus, we conclude that there are no disproportionate impacts on environmental justice populations. The record further shows that the project's implementation of the Conditions of Certification in this Decision will mitigate all potential health and safety and environmental impacts to levels below significance for any affected population, we conclude that there are no disproportionate impacts on environmental justice populations.

Intervenor Sarvey's testimony and post-hearing brief essentially argue that Staff's environmental justice analysis is deficient because it does not rely on the recently released (March 2011) 2010 U.S. Census data and instead relies on the US. Census data available when the AFC was filed and the evaluation was performed. Sarvey submitted no evidence or legal authority establishing that that 2000 census data is unreliable or that the minority population with the six-mile radius now exceeds 50 percent. Nor does Sarvey present any persuasive evidence regarding whether the project might result in a significant adverse impact on a low-income or minority population. As discussed throughout this Decision and as supported by the evidence of record), we conclude that the OGS Project will not cause a significant impact on anyone, including an environmental justice population. (See also, Ex. 401)

6. Compliance with LORS

As shown in **Socioeconomics Table 1** above, the only applicable state LORS pertain to the possible imposition of school impact fees. The California Government Code limits authority to impose school facilities fees to the AUSD. According to the evidence, all industrial development within the AUSD is currently charged a one-time assessment of $0.36 per square foot for industrial development. OGS is expected to have 18,600 square feet of occupied structures and will therefore pay about $6,696 to AUSD. (Ex. 300, p. 4.8-10.)

Compliance with this payment obligation will be ensured by implementation of Condition of Certification **SOCIO-2**.

Several local LORS would apply to the project but for the Commission's exclusive jurisdiction over the project. There is no evidence presented suggesting or establishing that the OGS project should not be subject to the City of Oakley's development-related ordinances. We therefore require the project to comply with the each of them.

More particularly, the City applies a Fire Facilities Impact Fee (Ordinance No. 09-01), which is based on the square footage of "building structures" such as office, control rooms, bathrooms, meeting rooms, and so on. This fee is expected to be $160 per 1,000 square feet of the project's building structures. (Ex. 300, p. 4.8-9.) The City's Public Facilities Fee is calculated in the same manner as the Fire Facilities Fee, but the payment obligation is $338 per 1,000 square feet of the project's building structures. (*Id*.)

Under Oakley Ordinance No. 03-03, the City imposes a Park and Land Dedication In-Lieu Fee. The fee is based on the square footage of "building structures." This fee is expected to be $538 per 1,000 square feet of the project's building structures. The Park Impact Fee (Ordinance No. 05-00) is calculated under the same criteria but at an assessment rate of $625 per 1,000 square feet of the project's building structures. (Ex. 300, p. 4.8-11.)

Compliance with these City ordinances will be ensured by implementation of Condition of Certification **SOCIO-1**, which mandates the project owner's payment of these fees.

7. Cumulative Impacts

A project may result in significant adverse cumulative impacts when its effects are cumulatively considerable; that is, when the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects [Public Resources Code Section 21083; California Code of Regulations, Title 14, Sections 15064(h); 15065 (c); 15130; and 15355]. Mitigation requires taking feasible measures to avoid or substantially reduce the impacts.

Regarding socioeconomics, cumulative impacts could occur when more than one project in the same area has an overlapping construction schedule, thus creating

a demand for workers that cannot be met locally. An increased demand for labor could result in an influx of non-local workers and their dependents, resulting in a strain on housing, schools, parks and recreation, law enforcement, and emergency services.

As shown in **Socioeconomics Table 2** below, the total construction labor force by metropolitan statistical area (MSA) for the region is more than sufficient to accommodate the labor needs for construction of power generation facilities and other large industrial projects.

Socioeconomics Table 2
Occupational Employment Projections by MSA/MD

Construction and Extraction Occupations for Selected MSA/MD	Average Annual Employment for 2006	Average Annual Employment for 2016
Vallejo-Fairfield MSA	14,070	11,200
Sacramento-Arden Arcade-Roseville MSA	74,290	81,940
Oakland-Fremont-Hayward MSA	80,120	84,380
Stockton MSA	15,870	16,550
TOTALS	**184,350**	**194,070**

Source: Ex. 300, FSA, EDD 2009 Projections of Employment by Industry and Occupation

The large size of the available workforce in the region indicates that OGS construction, in conjunction with construction of other nearby projects, will not adversely impact the availability of workers to complete other projects. Because the OGS Project will not cause any significant adverse socioeconomic impacts to population, housing, or public services due to the temporary nature of construction, it is unlikely that it would contribute significantly to cumulative socioeconomic impacts. Thus, the project's impact on socioeconomic factors, when combined with the existing or anticipated impact of other development, is not cumulatively considerable.

8. Public Benefits

Noteworthy public benefits include the direct, indirect, and induced economic impacts of a proposed power plant. (Ex. 300, pp. 4.8-13 – 4.8-14.) The anticipated economic benefits of OGS project are summarized below in **Socioeconomics Table 3.**

Socioeconomics Table 3
OGS Economic Benefits (2009 dollars)

Fiscal Benefits	
Estimated annual property taxes	$5.9 to $6.6 million annually
State and local sales taxes: Construction	$342,250 to $379,250
State and local sales taxes: Operation	$4,465 annually in Contra Costa County
Non-Fiscal Benefits	
Total capital costs	$450 to $500 million
Construction payroll	$111 to $124 million
Operations payroll	$3.5 million annually
Construction materials and supplies	$371.25 to $412.5 million of which $3.7 to $4.1 million would be spent in Contra Costa County
Operations and maintenance supplies	Annual estimate of $1.5 million of which $50,000 would be spent in Contra Costa County
Direct, Indirect, and Induced Benefits	
Estimated Direct Employment	
Construction	729 (peak employment)
Operation	22
Estimated Indirect Employment	
Jobs	21
Income	$763,960
Estimated Induced Income	
Jobs	138
Income	$5,773,980

Source: Ex. 300, FSA, OGS, AFC, Socioeconomics 5.10

In addition to the above-described fiscal benefits that will be provided by the project, the project is also expected to pay property taxes. The California Board of Equalization has jurisdiction over the valuation of the OGS for property tax purposes. The current property tax rate would be 1.3105 for fiscal year 2007-2008. Assuming, capital costs of $450 to $500 million, the OGS is expected to annually generate between $5.9 and $6.6 million in property taxes. The increase in property tax revenue generated by the OGS project would represent 0.1 percent of Oakley's total FY 2008 property tax revenue. (Ex. 300, p. 4.8-14.)

9. Agency and Public Comments

The City of Oakley responded in writing to Staff's Request for Agency Participation and Request for Comments and Recommendations. The City

advised Staff of the above-discussed local LORS that impose fees on industrial development within the City for impacts to parks, fire services, and public facilities. As evidenced by the adoption of Condition of Certification **SOCIO-1**, we have addressed the City's concerns by requiring the project owner to pay the fees imposed by the City's development-related ordinances.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The OGS Project will draw primarily upon the labor force in Contra Costa County or within two hours commuting distance from the project site, for both the construction and operation workforce.

2. Construction workers and permanent employees who live within a two-hour commute to the site are not likely to relocate to the project area.

3. The project will not cause a significant influx of construction or operation workers into the project area.

4. The project is not likely to have a significant adverse effect upon local employment, housing, schools, utilities, recreational parks, medical resources, or fire and police protection.

5. The project will provide direct, indirect, and induced economic benefits in Contra Costa County by payment of sales taxes, payroll, and other business expenses.

6. Construction and operation of the project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.

7. Review of the project is consistent with environmental justice principles.

8. Minority populations exist within a six mile radius of the site.

9. All potential health and safety and environmental impacts from the project will be mitigated to insignificant levels for all affected populations including minority populations.

10. The project will not cause or contribute to disproportionate impacts upon minority populations.

CONCLUSION OF LAW

Project construction and operation will provide economic benefits to the local area and is consistent with principles of environmental justice.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner shall pay to the city of Oakley the Park Land Dedication Fee, Park Improvement Fee, Public Facilities Fee and the Fire Facilities Fee.

Verification: At least 15 days prior to the start of project construction, the project owner shall provide the Compliance Project Manager (CPM) proof of payment to the city of Oakley for the Park Land Dedication Fee, Park Improvement Fee, Public Facilities Fee, and the Fire Facilities Fee.

SOCIO-2 The project owner shall pay the one-time statutory school facility development fee to the Antioch Unified School District as required by Education Code Section 17620.

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manager (CPM) proof of payment of the statutory development fee.

D. NOISE AND VIBRATION

The construction and operation of any power plant creates noise, or unwanted sound. A combination of different factors such as loudness, time of day, and proximity to sensitive receptors determines whether the source of noise will cause significant adverse impacts. In some cases, vibration results from construction activities, such as blasting or pile driving, which may cause structural damage and annoyance.

This topic evaluates whether noise and vibration produced during project construction or operation will be sufficiently mitigated to comply with applicable laws, ordinances, regulations and standards (LORS). We consider factors such as the character and loudness of the noise, the times of day or night when noise occurs, and the proximity to sensitive receptors to determine whether project noise will result in adverse environmental impacts. We also review whether vibration due to construction or operation will cause adverse impacts to adjacent properties.

Our CEQA evaluation recognizes that a significant effect from noise may exist if a project would result in:

- exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan, noise ordinance, or applicable standards of other agencies;
- exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;
- substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. (Section XI of Appendix G of CEQA Guidelines [Cal. Code Regs., tit. 14, App. G].)

Noise and Vibration Table 1 below identifies the applicable LORS which are discussed in this evaluation.

Noise and Vibration Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Federal	
(OSHA): 29 U.S.C. § 651 et seq.	Protects workers from the effects of occupational noise exposure.
State	
(Cal/OSHA): California Code Regulations, Title 8, sections 5095–5099	Protects workers from the effects of occupational noise exposure.
Local	
Contra Costa County General Plan, Noise Element	Establishes acceptable noise levels and limits hours of construction.
Contra Costa County Code (Title 7, section 716-8.1008 Nuisances.)	Requires that noise be controlled to prevent public nuisances.
City of Oakley General Plan, Noise Element	Establishes acceptable noise levels of 60 dBA.
City of Oakley Municipal Code	Limits hours of construction.
City of Antioch General Plan, Noise Element	Establishes acceptable noise levels and limits hours of construction.
City of Antioch Noise Ordinances	Establishes acceptable noise levels and limits hours of construction.

Source: Ex. 300.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence on this topic was undisputed. (3/15/11 RT 67-77, Exs. 1, § 5.7, Appendix 5.7; 32; 46; 50; 54; 55, 56; 300, § 4.6.)

1. Project Setting

The OGS Project is located in the City of Oakley in Contra Costa County. The City zoned the site and surrounding land uses for heavy industrial use; however, there are a number of residential receptors within a mile of the project. The nearest sensitive noise receptor is a mobile home park (Sandy Point Trailer Park) located approximately 900 feet southwest of the project site. The Lauritzen Yacht Harbor and the Driftwood Marina are about 2,300 feet north of the site.

Ambient noise in the project vicinity comes primarily from highway, train, and air traffic. (Exs. 1, pp. 5.7-3 – 5.7-4, Table 5.7-2; 300, pp. 4.6-4.7.)

2. Assumptions and Baseline Conditions

In evaluating whether the OGS Project will result in a substantial permanent increase in ambient noise levels above existing vicinity levels, Staff assumes that the potential for a significant noise impact exists where the noise of the project, in combination with the background, exceeds the existing ambient level by 5 dBA or more at the nearest sensitive receptor. Staff further assumes that an increase of up to 5 dBA in a residential setting is insignificant and that an increase of more than 10 dBA in such a setting is significant. In addition, according to Staff, an increase between 5 dBA and 10 dBA is likely adverse, but the level of significance must be determined on a case-by-case basis based on specified factors. Staff considers construction noise activities to be insignificant if, for instance,

- The construction activity is temporary.
- Use of heavy equipment and noisy activities is limited to daytime hours.
- All industry-standard noise abatement measures for noise-producing equipment are implemented. (Ex. 300, pp. 4.6-7 – 4.6-8, 4.6-19.)

We find these assumptions to be reasonable and appropriate for our evaluation of the project's potential noise impacts. We also note that the following discussion relies on the baseline level derived from the Applicant's ambient noise survey. (Exs. 1, pp. 5.7-2 – 5.7-8; 300, p. 4.6-8.)

The Applicant conducted continuous ambient noise monitoring at 12 locations to determine the level of noise in the project area. Three locations are shown below in **Noise Figure 1**. However, long-term (24 hours or more) measurements were collected at only three locations.

NOISE AND VIBRATION - FIGURE 1
Oakley Generating Station - Noise Monitoring Locations

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.7-1

NOISE AND VIBRATION

The March 31 through April 2, 2009 survey monitored long-term (24 hours or more) and short-term noise levels at the following three locations:

- **Measuring Location M1 (Lauritzen Yacht Harbor)**: Located within the Sportsman Yacht Club, approximately 1,940 feet north of the project site boundary. Long-term monitoring showed ambient noise levels typical of a light industrial environment.

- **Measuring Location M2 (Trailer Park on Bridgehead Road)**: Located within the mobile home park on Bridgehead Road, approximately 900 feet southwest of the project site boundary. This location represents the nearest sensitive receptors likely affected by project noise. Long-term monitoring showed ambient noise levels typical of a light industrial environment.

- **Measuring Location M3 (1911 Beringer Way)**: Located near the southwest corner of a residential development, approximately 4,000 feet east of the project site boundary. Long-term monitoring showed ambient noise levels typical of a residential environment. (Ex. 1, p. 5.7-4; 300, p. 4.6-8.)

Noise and Vibration Table 2 below summarizes the measured ambient noise levels from the three above-described locations:

Noise and Vibration Table 2
Summary of Measured Ambient Noise Levels

Measurement Location	Measured Noise Levels, dBA		
	L_{eq} – Daytime[1]	L_{eq} – Nighttime[2]	L_{90} – Nighttime[3]
M1: Yacht Club	54	53	48
M2: Mobile Park (Nearest Residences)	58	55	45
M3: East Residences	64	57	35

Source: Exs. 300, 1, § 5.7.2.2, Tables 5.7-4 through 5.7-7; Appendix 5.7A

[1] Staff calculations of average of 15 daytime hours
[2] Staff calculations of average of 9 nighttime hours
[3] Staff calculations of average of 4 consecutive quietest hours of the nighttime,

3. Construction Impacts

a. General Construction Activities

Construction activities are temporary in nature, and do not increase long-term ambient noise levels. The evidence indicates that the 33-month construction

period for the OGS Project will be typical of similar projects in terms of schedule, equipment used, and construction activities. (Exs. 1, p. 5.7-9; 300, p. 4.6-7.)

The Applicant estimated the noise impacts of project construction on receptors M1, M2, and M3 based on the loudest equipment types generally operating at a site during each phase of construction. For each phase, the Applicant also estimated average or equivalent construction noise levels at various distances from the OGS site. (Ex. 1, pp. 5.7-9 – 5.7-10, Tables 5.7-8 – 5.7-10.)

Based on the Applicant's assessment, a maximum construction noise level of 89 dBA L_{eq} will occur 50 feet from the acoustic center of the construction activity (the power block) and weaken to no more than 64 dBA L_{eq} at location M2, which is the nearest sensitive receptor. **Noise and Vibration Table 3** below provides a comparison of expected OGS construction impacts to existing ambient conditions.

Noise and Vibration Table 3
Predicted Power Plant Construction Noise Impacts

Receptor	Highest Construction Noise Level[1] (dBA L_{eq})	Measured Existing Ambient[2] (dBA L_{eq})	Cumulative (dBA L_{eq})	Change (dBA)
M1 – Yacht Club	57	54 daytime	59 daytime	+5 daytime
		53 nighttime	58 nighttime	+5 nighttime
M2 – Mobile Park (Nearest Residence)	64	58 daytime	65 daytime	+7 daytime
		55 nighttime	65 nighttime	+10 nighttime
M3 – East Residences	51	64 daytime	64 daytime	+0 daytime
		57 nighttime	58 nighttime	+1 nighttime

1 Source: Exs. 300, 1§ 5.7.3.2.1, Tables 5.7-8 and 5.7-9; and Staff calculations
2 Source: Exs. 300, 1 § 5.7.2.2, Tables 5.7-4 through 5.7-7; Appendix 5.7A; and Staff calculations of average of daytime and nighttime hours.

Thus, the change in nighttime noise levels ranges from an increase of 1 dBA to 10 dBA over existing ambient levels. Daytime noise levels may increase up to 7 dBA over existing ambient levels. Under Staff's recommended significance criteria (discussed above) with which we concur, these worst-case 7 dBA and 10 dBA increases could be adverse and potentially significant. (Ex. 300, p. 4.6-5.)

However, as established by the evidence, the City of Oakley limits "noisy construction" work (i.e., noise that can potentially draw legitimate complaint) to weekday daytime hours of 7:30 a.m. to 7:00 p.m. and weekend daytime hours of 9:00 a.m. to 7:00 p.m. The City of Antioch similarly limits heavy equipment noise and construction equipment noise near occupied residences to weekday hours of 8:00 a.m. to 5:00 p.m. and weekend hours of 9:00 a.m. to 5:00 p.m. Compliance with these ordinances will thus eliminate the potential 10 dBA nighttime increase at M2 (the nearest residences) as well as limit the potential 7 dBA increase to specified hours.

Condition of Certification **NOISE-8** incorporates the cities' restrictions and requires that heavy equipment operation and noisy construction work be limited to the specified times in the respective ordinances, according to where construction activities take place. With implementation of **NOISE-8** (and resulting compliance with the cities' noise LORS), the potential for the noise increases will be minimized and any potential resulting impacts will be reduced to less than significant levels. To further ensure that construction results in less than significant impacts at the most-noise sensitive receptors, we require compliance with **NOISE -1** and **-2** which collectively establish a notification and complaint process to resolve noise-related complaints.

b. Steam Blows

Steam blows typically create the loudest noise encountered during construction. If a plant starts up without prior thorough cleaning of the feed-water and steam systems, debris of various kinds can enter and damage or destroy the steam turbine. To prevent these possible occurrences, a steam system connects to the turbine and the steam line temporarily routes to the atmosphere. This flushing action comprises a steam blow. A series of short steam blows, lasting two to three minutes each, is typically performed several times daily over a period of two or three weeks. (Ex. 300, p. 4.6-11.)

The evidence indicates that high-pressure steam blows can produce noise as loud as 130 dBA at a distance of 50 feet. This data shows that the OGS Project could result in steam blow noise that attenuates to about 104 dBA at location M2. (Exs. 1, pp. 5.7-3 – 5.7-8, 5.7-9 – 5.7-10; 300, pp. 4.6-11 – 4.6-12.) The evidence establishes that a 20 to 30 dBA reduction in steam blow noise levels can occur by equipping the steam blow piping with a silencer. (Ex. 300, p. 4.6-11.) The evidence further explains that the project could use a quieter low pressure steam blow process. At location M2, the steam blow noise using this

technology would be about 61 dBA, or an increase of up to 5 dBA over existing ambient levels. (Ex. 300, p. 4.6-11.)

Condition of Certification **NOISE-6** requires the project owner to take measures to muffle the steam blows so that noise levels result which are no greater than 68 dBA at M2 and 64 dBA at M1. These levels will create a temporary increase over existing daytime ambient levels of no more than 10 dBA, and over a period of only two to three weeks. (Ex. 300, pp. 4.6-11 – 4.6-12.) Moreover, **NOISE-6** and **NOISE-8** limit high-pressure steam blows to specified hours on weekdays and weekends. With implementation of these conditions, the impacts of the temporary high-pressure steam blows will be reduced to less than significant levels.

Whichever technology is employed, Condition of Certification **NOISE-6** requires the project owner to submit to the Compliance Program Manager (CPM) a description of the process, including anticipated noise levels and anticipated hours of operation. Condition of Certification **NOISE-7** also requires the project owner to notify all residents and business owners within one mile of the project site of the planned steamed blow activity at least 15 days prior to the first steam blows. With these measures, the evidence shows that the temporary steam blow activities will be as unobtrusive as feasible.

c. Pile Driving Noise and Vibration

The evidence contains Staff's assessment of noise associated with pile driving even though the Applicant has not decided whether pile driving will be necessary. (Ex. 300, p. 4.6-12.) Pile driving could produce noise reaching 104 dBA at a distance of 50 feet. **Noise and Vibration Table 4** below shows the predicted pile driving noise impacts as compared to existing daytime ambient noise levels.

Noise and Vibration Table 4
Pile Driving Noise Impacts

Receptor	Pile Driving Noise Level (dBA L_{eq})	Daytime Ambient Noise Level (dBA L_{eq})	Cumulative Level (dBA)	Change (dBA)
M1	72	54	72	+18
M2	79	58	79	+21
M3	66	64	68	+4

Source: Ex. 300, 1 § 5.7.2.2, Tables 5.7-4 through 5.7-7 and 5.7-10; Appendix 5.7A; and Staff calculations.

While the impacts as M1 and M2 will be noticeable, the temporary nature of pile driving, combined with the limited times of day during which these activities can occur (see, Condition of Certification **NOISE-8** discussed above), indicates that the impacts will be tolerable to residents and not result in significant adverse impacts. (Ex. 300, p. 4.6-12.)

The evidence further indicates that pile driving is the only construction activity likely to produce vibration perceived off-site. Because vibration rapidly attenuates (weakens), we do not anticipate that it will be perceptible at any appreciable distance from the project site. Thus, we find that pile driving will not result in significant vibration impacts. (Ex. 300, p. 4.6-13.)

d. Worker Effects

Finally, to ensure adequate protection of construction workers from noise hazards consistent with federal and state LORS, we adopt Condition of Certification **NOISE-3**. **NOISE-3** requires the project owner to submit a noise control program to the CPM for review and approval, and to then implement the approved program.

4. Operational Impacts

a. General Operation Activities

The primary sources of OGS operational noise are the combustion turbine generators, steam turbine generators, compressors, heat recovery steam generator exhaust stack, air-cooled condenser, and transformers. These components cause the power plant to operate as a steady, continuous noise source unlike the intermittent sounds that make up most of the existing noise environment. OGS noise will contribute to, and become part of, the overall background noise level. (Exs. 1 pp. 2-13, 2-15, 2-20; 300, p. 4.6-11.)

The Applicant performed noise modeling to assess project noise impacts on sensitive receptors. The modeling included the following noise reduction measures incorporated into the project design:

- Noise barrier around the combustion turbines.
- Lower noise combustion ventilation fans.
- Noise barrier along the east, south, and west sides of the steam turbine structure.

- Noise barrier on the south side of the HRSG inlet ducts.
- Low-noise ACC fans.
- Noise barriers around the transformer. (Ex. 1, pp. 5.7-13 – 5.7-14; 300, p. 4.6-13.)

Local planning policy guidelines for Contra Costa County and the City of Oakley require projects to meet an exterior noise level standard of 60 dBA CNEL in residential areas.[1] (Ex. 300, p. 4.6-14.)

The evidence establishes that the measures above will ensure that operational noise levels will not exceed an hourly average of 47 dBA at M1, 51 dBA at M2, and 41 dBA at M3. These are all below the level deemed acceptable under local LORS. To ensure compliance, we impose Condition of Certification **NOISE-4**, which requires project design and implementation to include the noise reduction measures mentioned above.

The Applicant and Staff also compared the predicted operational noise levels to nighttime ambient background levels, as shown below in **Noise and Vibration Table 5**. (Exs. 1, pp. 5.7-4 – 5.7-8; 300, p. 4.6-13.)

Noise and Vibration Table 5
Predicted Operational Noise Levels

Receptor	Project Alone Operational Noise Level L_{eq} (dBA) [1]	Measured Existing Ambient, Average Nighttime L_{90} (dBA) [2]	Project Plus Ambient L_{90} (dBA)	Change in Ambient Level
M1	47	48	51	+3
M2	51	45	52	+7
M3	41	35	42	+7

[1] Source: Exs. 300, 1, § 5.7.3.3.3

[2] Source: OG 2009a, AFC § 5.7.2.2, Tables 5.7-4 through 5.7-7; Appendix 5.7A; and Staff calculation of four consecutive quietest hours of nighttime

The evidence establishes that an increase between 5 dBA and 10 dBA is adverse, but not necessarily significant. The level of significance must be determined on a case-by-case basis. In the present instance, combining the ambient noise level of 48 dBA L_{90} with the operational noise level of 47 dBA at location M1 results in a nighttime noise level of 51 dBA L_{90}. This 3 dBA increase over the ambient level is not a significant impact, even if future residential

[1] CNEL accounts for the higher nighttime sensitivity to noise, when people are generally sleeping.

development occurs at M1. Adding the OGS operational noise to the existing ambient nighttime levels at M2 and M3 results in a 7 dBA increase at each location. This could potentially be significant because it occurs at nighttime while people are sleeping.

Operations – which are expected to be continuous for 24 hours a day, seven days per week – will create a steady, continuous noise source yielding a worst-case level of 52 dBA at location M2, the nearest residential receptors. This noise level is consistent with local LORS that apply the CNEL standard. In addition, the evidence also details Applicant's efforts to further reduce the noise level at M2, including the use of lower noise air cooled fans, enclosing the CTGs in a large building, or constructing a sound wall along Bridgehead Road. (Ex. 300, p. 4.16-18.) None of these measures are feasible, or implementing them would create other impacts.

At M3, the cumulative noise level (project noise combined with ambient noise) will be less than 45 dBA. This nighttime level with the project operating will be consistent with the recommended limit for rural environments and considered quiet in many locations. We therefore determine that this impact is not significant. To ensure this noise level is not exceeded, we impose Condition of Certification **NOISE-4** (discussed above), which requires the project to ensure that the noise levels due to project operations alone do not exceed an hourly average of 41 dBA at location M3.

Thus, in view of CEQA significance criteria as refined by Staff and local LORS, we do not view either the 3 dBA increase at M1 or the 7 dBA increase at location M2 as significant. Similarly, the nighttime noise level at M3, while increasing by 7 dBA, will remain below the permissible level

b. Tonal Noises

Strong tonal noises are another source of possible disturbance. Tonal noises are individual sounds (such as pure tones) that stand out in tone or quality. These noises are not likely to be heard at nearby residential locations and, if heard, will not exceed permissible noise levels.. Implementation of Condition of Certification **NOISE-4** will ensure the project owner's compliance in this regard. **NOISE-4** specifies that OGS must not cause new pure tone components or allow any single piece of equipment to stand out as a source of noise that draws legitimate complaints. Thus, tonal noise impacts will be minimized to less than significant levels. (Exs. 1, p. 5.7-14; 300, p. 4.6-16.)

c. Vibration

OGS could result in ground and airborne vibration from its high-speed gas turbines, compressors, and various pumps. However, the occurrence of such vibration and resulting impacts are unlikely. The evidence establishes that the OGS equipment is well balanced and designed to produce low levels of groundborne vibration. The evidence further establishes that the OGS equipment includes vibration-monitoring systems designed to ensure that the system remains balanced. As shown by the evidence, if any ground borne vibration were to occur, it would be undetectable by any likely receptor. (Exs. 1, pp. 5.7-14 – 5.7-15; 300, pp. 4.6-16 – 4.6-17.)

The primary source of potential airborne vibration will be exhaust from the gas turbines. This low frequency noise can rattle windows and objects on shelves, as well as the walls of lightweight structures. However, such impacts from OGS are unlikely given the process by which the exhaust reaches the atmosphere. The exhaust passes through the HRSG (which incorporates a selective catalytic reduction (SCR) unit that acts as a noise muffler) and the stack silencers before it reaches the atmosphere. This combination makes it highly unlikely that the OGS will cause perceptible airborne vibration effects. (Ex. 300, p. 4.6-16 – 4.6-17.)

d. Worker Effects

To ensure adequate protection for that plant operation and maintenance workers, we adopt Condition of Certification **NOISE-5**. (Exs. 1, p. 5.7-12; 300, p. 4.6-17.) **NOISE-5** requires the project owner to conduct an occupational noise survey to identify and mitigate noise hazards as required by federal and state LORS.

5. Linear Facilities

The OGS Project's new off-site linear facilities include one or two natural gas pipelines (300 feet-long and 410 feet-long, respectively). Because the construction of linear facilities typically moves along at a rapid pace, receptors will be subject to noise impacts for no more than two or three days during the daytime hours as allowed by the local LORS and Condition of Certification **NOISE-8**. Thus, noise from pipeline construction will not be significant. Furthermore, because all gas piping will be underground and silent during operation, the plant's use of the natural gas pipeline will not cause significant noise impacts. (Ex. 300, pp. 4.6-11, 4.6-16.)

The project's linear facilities also include new transmission lines. Noise effects from the electrical interconnection line are not likely to extend beyond the right-of-way easement and, accordingly, will be inaudible to any receptors. (*Id*. at p. 4.6-14.) The **Transmission Line Safety and Nuisance** section of this Decision discusses other potential audible noise impacts associated with the project's transmission lines and switchyard.

6. Cumulative Impacts

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Res. Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c), 15130, 15335.)

The evidence contains the Applicant's and Staff's cumulative impact assessments. The combined evidence establishes that the OGS site is within the Northwest Oakley Planning Area. (Ex. 1, p. 5.7-15.) The DuPont Specific Plan also applies to the project site. This plan envisions the following types of development north of the OGS site: 15 acres of retail/commercial property, 34 acres of research and development/business park, and 77 acres of light industrial development. Development under the DuPont Specific Plan might result in increased daytime traffic noise but not in significant nighttime traffic noise.

The River Oaks Crossing Specific Plan governs development south and southeast of the OGS site. This plan contemplates commercial development of a 76.4-acre project site, including up to 770,000 square feet of retail, restaurant, and possible hotel uses. The BNSF railroad line that separates the OGS site from the River Oaks Crossing Specific Plan area will be a significant noise source per the plan's environmental impact report (EIR). The EIR calls for visual landscaping screening, earth mounding, and building mass to block rail-related noise. (Ex. 1, p. 5.7-15.) According to the EIR, the construction methods that will be used on a majority of the buildings will reduce interior noise levels by at least 25 dBA and keep the noise at acceptable levels. The plan's EIR also evaluated OGS noise levels at 100 feet from BNSF. The OGS levels were predicted to be both acceptable and lower than the BNSF noise levels.

Staff identified two additional nearby projects with potential to combine with the OGS and result in cumulative impacts: the Gateway Generating Station and the Marsh Landing Generating Station. Gateway is currently operational and the

noise it generates was included in the ambient background noise analyses. The Marsh Project is not yet operational but, given its distance from OGS, its noise impacts will be less than the measured ambient noise levels for receptors closer to OGS.

Overall, the evidence indicates that the impacts of OGS will be reduced to less than significant levels or avoided with implementation of the Conditions of Certification. The OGS will not result in, or contribute to, significant cumulative impacts.

7. Project Closure Impacts

When OGS closes, all operational noise from the project will stop and no further adverse noise impact from its operation will be possible. The remaining potential temporary noise sources will be the dismantling of the structures and equipment and any necessary site restoration work. Because this noise will be similar to that caused by the original construction, it will be similarly treated. Noisy work will be performed during daytime hours, with machinery and equipment properly equipped with mufflers. All applicable LORS in effect at the time of closure will apply to the project. Applicable Conditions of Certification included in the Commission's Decision will also apply unless modified. (Ex. 300, p. 4.6-17.)

8. Agency and Public Comments

Chris Aday, an Oakley resident, submitted two separate written comments relating to the Preliminary Staff Assessment regarding potential noise impacts. The first comment, in a letter dated January 5, 2011, questioned whether the Applicant's noise study adequately reflected the "true" ambient noise levels at measuring location M3 due to the BNSF railroad. In response, Staff explained that the Applicant provided detailed long-term measuring data for location M3 and short-term data at two nearby locations within the residential development mentioned, listed as M3a and M3b in the AFC (citing to AFC [Exhibit 1] Appendix 5.7A). Staff determined that the data for location M3 provided a more conservative estimate of the ambient nighttime noise environment in the vicinity. Staff further explained that it used conservative L_{90} nighttime ambient noise levels in estimating the project's operational noise.

The L_{90} value is considered by industry to be representative of ambient noise levels and high noise levels due to sporadic or intermittent events, such as train traffic, are not included in an L_{90} measurement. In other words, if Staff had

considered the higher ambient noise level (i.e., accounting for the railroad noise), the project would have been allowed to generate higher noise levels than currently allowed. (Ex. 300, pp. 4.6-19 – 4. 6-20.)

Mr. Aday's January 5 letter also questioned whether the Applicant evaluated prevailing winds and local dense fog in its noise analysis. Staff replied that based on its experience with two other power projects in proximity to the OGS site (Gateway Generating Station and Marsh Landing Generating Station), it does not believe that local weather conditions will cause anomalous noise behavior. The noise complaint process outlined in Condition of Certification **NOISE-2** will ensure resolution of any unforeseen noise impacts caused by the project. (Ex. 300, p. 4.6-20.)

By an email dated January 11, 2011, Mr. Aday also expressed concern that the project's quick start capability might allow the project to avoid the noise survey required by Condition of Certification **NOISE-4**. Staff replied that project compliance will not be deemed complete – and plant operation can not commence – until the project completes the noise survey and the Compliance Program Manager (CPM) reviews and approves the survey.

Oral and written comments were received from the owners of Lauritzen Yacht Harbor and on behalf of Driftwood Marina. (3/25/11 RT 74-77.) They are concerned with the noise generated from the steam blows as well as construction and operational noise impacts on existing and possible future uses of nearby property. They contend "high-pressure steam blows, with cumulative ambient noises, could increase cumulative noises levels by 14 dBA to 68 dBA" and that 68 dBA "would far exceed the 60 dBA standard set forth by Contra Contra County and the City of Oakley."

Both the evidence and the above discussion adequately address steam blow, construction, and operational noise impacts under applicable significance criteria. (See, e.g., Exs. 1, § 5.7, Appendix 5.7, 300, § 4.6.) Condition of Certification **NOISE-6** requires the project owner to take measures to muffle the steam blows with a silencer that results in a noise level no greater than 68 dBA at M2 and no greater than 64 dBA at location M1, which is the location of the Lauritzen Yacht Harbor. These levels will result in an increase over existing daytime ambient levels of no more than 10 dBA. (Ex. 300, pp. 4.6-11 – 4.6-12.) Moreover, **NOISE-6** and **NOISE-8** limit high-pressure steam blows to specified hours on weekdays and weekends. With implementation of these conditions, the impacts

of the the temporary high pressure steam blows will be reduced to less than significant levels.

We also find that if the project implements a quieter process that uses lower pressure steam, the steam blow noise would be about 61 dBA at M2. This represents up to a 5 dBA temporary increase over existing ambient levels at this location. (Ex. 300, p. 4.6-11.) This increase will not result in significant impacts. We nonetheless also include Condition of Certification **NOISE-6**, which requires the project owner to submit to the Compliance Program Manager (CPM) a description of the process, including anticipated noise levels and anticipated hours of operation. Finally, Condition of Certification **NOISE-7** requires the project owner to notify all residents and business owners within one mile of the project site of the planned steamed blow activity at least 15 days prior to the first steam blows.

As discussed above, the City of Oakley Municipal Code regulates construction noise by way of Ordinance Section 4.2.208, which **focuses exclusively** on limiting noisy construction activities to specified dates and times. Compliance with Conditions of Certification **NOISE-6** and **NOISE-8** ensure compliance with the local LORS. (See, e.g., Ex. 300, p. 4.6-5.)

The evidence establishes that the project must implement several measures to ensure that noise levels due to operation alone will not exceed an hourly average of 51 dBA, measured at or near monitoring location M2 (the nearest residences, approximately 900 feet south of the project site boundary), and an hourly average of 41 dBA, measured at or near monitoring location M3 (approximately 4,000 feet southeast of the project site boundary). (See Condition of Certification **NOISE-4**.) Regarding project construction, Conditions of Certification **NOISE-2** and **NOISE-3** ensure that the project owner implements a noise control program and addresses all project-related construction noise complaints.

The oral and written comments of Lauritzen Yacht Harbor and Driftwood Marina further contend that the evidence of record fails to consider the project's noise impacts on a Zoning Text Amendment approved by the City of Oakley, which would possibly allow small-lot and multi-family residential uses of property near the OGS site. (3/25/11 RT 73-90.) The comments suggest that a power plant is an incompatible use near residential development. However, as discussed above and in the **Land Use** section of this Decision, we find that: (1) the OGS site is zoned for heavy industrial uses including a power plant; implementation, (2) the City of Oakley's Community Development Department and Staff thoroughly

evaluated the project's compliance with local LORS and determined that the project will be LORS compliant; and (3) with implementation of the Conditions of Certification, the OGS Project will not result in significant adverse environmental noise impacts or contravene applicable LORS. Moreover, because the analysis of noise impacts necessarily includes a cumulative impacts analysis, the project's possible cumulative noise impacts on existing, planned, and possible future projects near the OGS have been adequately addressed by the evidence of record.

FINDINGS OF FACT

Based on the evidence, we make the following findings and reach the following conclusion:

1. Construction and operation of the OGS Project will create noise levels above existing ambient levels in the surrounding project area.

2. Construction noise levels will be mitigated to the extent feasible by employing measures such as construction notification, limiting construction to daytime hours in accordance with local noise control laws and ordinances, and a noise complaint process.

3. Construction noise will be temporary. The measures contained in the Conditions of Certification and compliance with local LORS will assure that noise from construction is mitigated to below the level of significance.

4. Operational noise will increase noise above existing ambient levels in the surrounding project area.

5. Operational noise levels will be mitigated to the extent possible by design measures and by employing a noise complaint process and noise restrictions near sensitive receptors.

6. Operation of the OGS project will not create significant adverse increases in existing ambient daytime or nighttime noise levels at measuring locations M1, M2, or M3.

7. The project owner will implement measures to protect workers from injury due to excessive noise levels.

8. The OGS Project will not create ground or airborne vibrations which cause significant off-site impacts.

9. Implementation of the Conditions of Certification, identified below, ensure that project-related noise emissions will not cause significant adverse impacts to sensitive noise receptors.

CONCLUSION OF LAW

The Commission concludes that implementation of the following Conditions of Certification ensure that the OGS Project will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the pertinent portion of **Appendix A** of this Decision, and that the project will not cause indirect, direct, or cumulative significant adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one mile of the site and one-half mile of the linear facilities, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of OGS, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;

- Attempt to contact the person(s) making the noise complaint within 24 hours, or 72 hours if the complaint is made over the weekend;
- Conduct an investigation to determine the source of noise related to the complaint;
- Take all feasible measures to reduce the noise at its source if the noise is project related; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts, and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three calendar day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program and the owner's project manager's signed statement. The project owner shall make the program available to Cal/OSHA upon request.

NOISE RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the noise levels due to operation of the project alone will not exceed an hourly average of 51 dBA, measured at or near monitoring location M2 (approximately 900 feet south of the project site boundary), and an hourly average of 41 dBA, measured at or near monitoring location M3 (approximately 4,000 feet southeast of the project site boundary).

No new pure-tone components shall be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

The project owner shall design and construct the project with the following noise attenuation measures:

- Noise barriers around the noisy portions of the combustion turbines;
- Lower noise combustion turbine ventilation fans;
- Noise barriers along the east, south and west sides of the steam turbine structure;
- Noise barriers on the south side of the inlets to the heat recovery steam generators;
- Lower noise air-cooled condenser fans; and
- Noise barriers around the generator step-up transformers.

A. When the project first achieves a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct a 25-hour (continuously) community noise survey at monitoring locations M2 and M3, or at a closer location acceptable to the CPM. This survey during the power plant's full-load operation shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.

   The measurement of power plant noise for the purposes of demonstrating compliance with this Condition of Certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

B. If the results from the noise survey indicate that the power plant noise at the affected receptor sites exceeds the above values, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The survey shall take place within 30 days of the project first achieving a sustained output of 90 percent or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report shall be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM

approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

NOISE-5 Following the project's first achieving a sustained output of 85 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095–5099 and Title 29, Code of Federal Regulations section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal/OSHA upon request.

STEAM BLOW RESTRICTIONS

NOISE-6 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 68 dBA L_{eq} measured at monitoring location M2 and no greater than 64 dBA L_{eq} measured at monitoring location M1. The project owner shall conduct high pressure steam blows only between the hours of 9:00 a.m. to 7:00 p.m. If a low-pressure continuous steam blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM.

Verification: At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule. At least 15 days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-7 At least 15 days prior to the first steam blow(s), the project owner shall notify all residents or business owners within one mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the

expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: Within five days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

CONSTRUCTION TIME RESTRICTIONS

NOISE-8 Heavy equipment operation and noisy construction[2] work relating to any project features, including pile driving, shall be restricted to the times delineated below:

Mondays through Fridays:	7:30 a.m to 7:00 p.m.
Weekends:	9:00 a.m. to 7:00 p.m.
Holidays:	Not Allowed

For construction of linears taking place within the city limits of the City of Antioch, heavy equipment operation and noisy construction work shall be restricted to the times delineated below:

Mondays through Fridays:	7:00 a.m. to 6:00 p.m.
Mondays through Fridays within 300 feet of occupied residences:	8:00 a.m. to 5:00 p.m.
Weekends and holidays:	9:00 a.m. to 5:00 p.m.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Variance from the above-noted restrictions may be allowed upon issuance of a variance or waiver by the CPM, in consultation with the City of Oakley for those aspects of construction being performed within the city of Oakley, (and in consultation with the City of Antioch for

[2] Noisy Construction: "Noise that can potentially draw legitimate complaints"

Legitimate Complaint: "A legitimate noise complaint refers to a complaint about noise that is confirmed by the CPM to be disturbing, and that is caused by the OGS Project as opposed to another source. A legitimate complaint constitutes a violation by the project of any noise Condition of Certification (as confirmed by the CPM), which is documented by an individual or entity affected by such noise."

those aspects of construction being performed within the city of Antioch).

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project, unless a variance or waiver from the above-noted restrictions has been approved by the CPM.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Oakley Generating Station **(09-AFC-4)**
NOISE COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number: _____
Date complaint received: _____ Time complaint received: _____
Nature of noise complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted: _____
Initial noise levels at 3 feet from noise source _____ dBA Date: _____ Initial noise levels at complainant's property: _____ dBA Date: _____ Final noise levels at 3 feet from noise source: _____ dBA Date: _____ Final noise levels at complainant's property: _____ dBA Date: _____
Description of corrective measures taken: Complainant's signature: _____ Date: _____
Approximate installed cost of corrective measures: $ _____ Date installation completed: _____ Date first letter sent to complainant: _____ (copy attached) Date final letter sent to complainant: _____ (copy attached)
This information is certified to be correct: Plant Manager's Signature: _____

(Attach additional pages and supporting documentation, as required).

E. VISUAL RESOURCES

The natural and cultural features of the landscape that contribute to its visual character or quality constitute visual resources. CEQA requires an examination of a project's influence upon these factors in order to determine whether the project has the potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code Regs., tit. 14, § 15382, Appen. G.)

The evidence presented on this topic was undisputed. (3/15/11 RT 67-77; Exs. 1, § 5.13; 21; 24; 27; 32; 46; 50; 55; 300, § 4.12.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Setting

The Oakley Generating Station (OGS) will be located within the city limits of Oakley, in Contra Costa County. The approximate 22 acre project site lies on land currently planted with vineyards, at a confluence of shoreline, highway, industrial, and agricultural landscapes. An existing line of mature Tasmanian Blue Gum (*Eucalyptus globus*) trees defines the northern boundary. The Burlington Northern Santa Fe railroad tracks run along the southern perimeter. A heavily industrialized area, comprised in part of numerous power plants, lies to the west where the site is adjacent to PG&E's Antioch Gas Terminal and Bridgehead Road. The City of Oakley, with its mixture of shoreline, industrial, residential, commercial, and other uses is to the east. The parcel is relatively flat, sloping gently from south to north. (Ex. 300, pp. 4.12-4 - 4.12-5.)

The project's transmission interconnection line will run, in an existing transmission corridor, approximately 2.4 miles to PG&E's Contra Costa Substation. The existing 60-kV single circuit line will be replaced by a double-circuit 60-kV/230-kV line on new poles north of Main Street and by single circuit 230-kV poles from Main Street to the substation. (Ex. 300, p. 4.12-6.) A new 300 foot long natural gas pipeline will connect to PG&E's Line 303 adjacent to the site on the west. The project's associated natural gas, water, and sewer pipelines will be placed underground, thus not creating visual impacts. (Ex. 300, pp. 4.12-7, 4.12-24.)

2. Impact Assessment

The evidence explains that, in order to determine whether the OGS will create a potentially significant impact, Staff explored the following inquiries in accordance with Appendix G of the CEQA Guidelines:

- Would the project have a substantial adverse effect on a scenic vista?
- Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor?
- Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
- Would the project create a new source of substantial light or glare which would adversely affect day or night time views in the area? (Ex. 300, p. 4.12-7.)

The evidence further explains that the visual resources assessment evaluated both the existing visible setting and the anticipated change which will be caused by the project. To do this, the analysis used fixed vantage points called "Key Observation Points" (KOPs). These represent the most characteristic and critical viewing locations from which the project will be seen.

The severity of a visual impact is assessed in two steps. First, the susceptibility of the setting to impact as a result of its existing characteristics (reflected in its current level of visual quality, the potential visibility of the project, and the sensitivity to scenic values of its viewers) is evaluated. Next, the degree of visual change anticipated as a result of the project is determined. These two factors are referred to, respectively, as visual sensitivity (of the setting) and visual change (due to the project). [1](Ex. 300, p. 4.12-8.)

Seven KOPs were used in analyzing the OGS:

KOP 1 – View to the northeast toward the project site from the existing driveway of the Sandy Point Mobile Home Park where it exits to Bridgehead Road.

[1] A high level of visual change to an area with a high level of existing scenic quality is likely to create an adverse impact; the converse is also true. (Ex. 300, p. 4.12-8.)

KOP 2 – View to the northeast toward the project site from the northbound lane of SR 160.

KOP 3 – View to the northwest toward the project site from SR 4/Main Street at Live Oak Avenue.

KOP 4 – View to the southwest toward the project site from Wilbur Avenue, within the DuPont property.

KOP 5 – View to the southwest toward the project site from Central Slough, within the DuPont property.

KOP 6 – View to the south from Almondridge Park toward the existing and proposed transmission corridor.

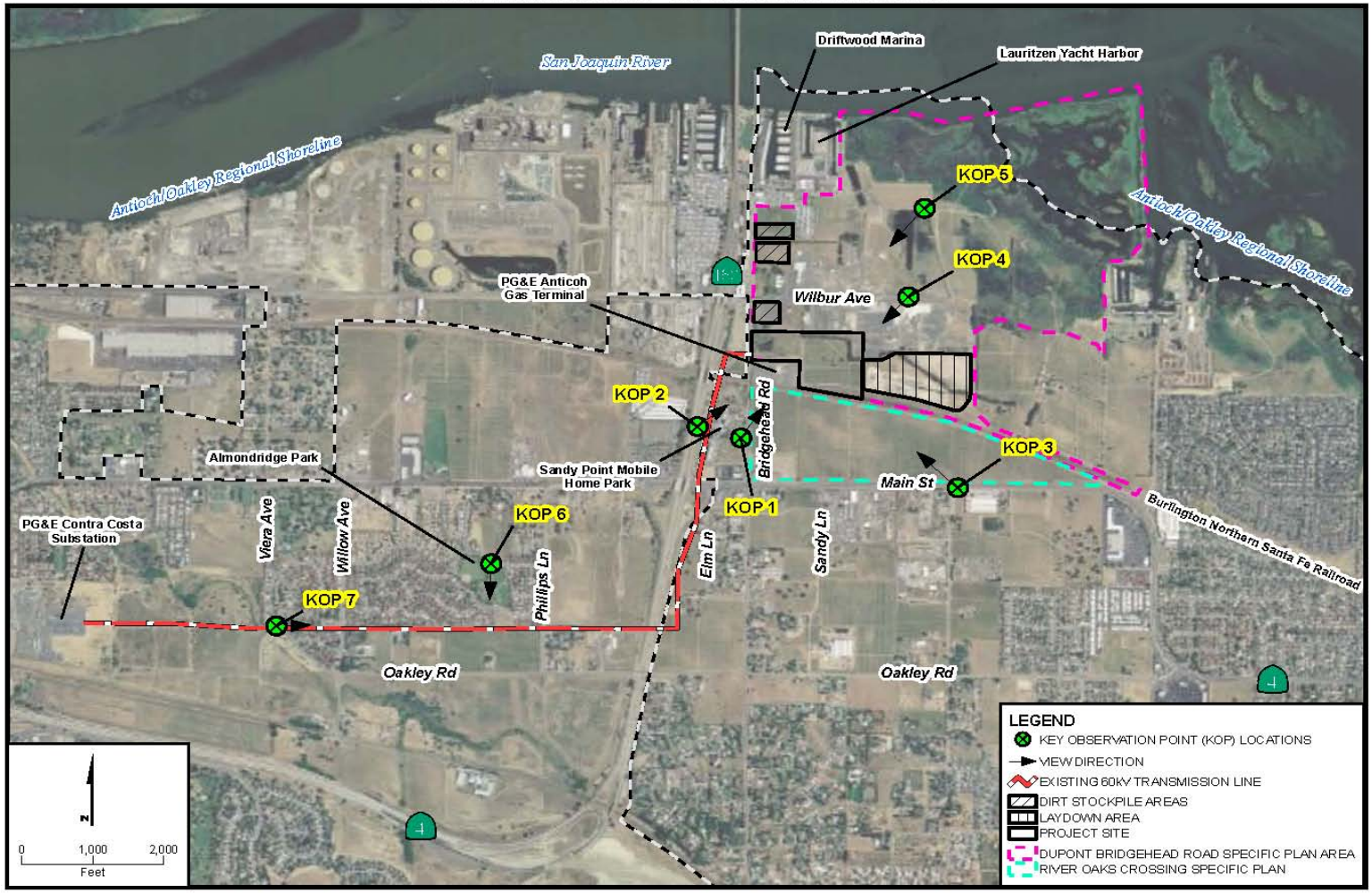
KOP 7 – Views to the east from intersection of Viera Avenue and Oakley Road in Antioch toward the existing and proposed transmission corridor. [2](*Id*.)

VISUAL RESOURCES Figure 1 shows the location of these KOPs.

[2] The evidence contains detailed descriptions and depictions of the viewsheds from each KOP. (Exs. 1, pp. 5.13.1 – 5.13-25; 300, pp. 4.12-12 - 4.12-22 and following p. 4.12-48.)

VISUAL RESOURCES - FIGURE 1

Oakley Generating Station - Key Observation Point Locations



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: AFC Figure 5.13-1

VISUAL RESOURCES

The evidence then discusses whether project construction or operation will create visual impacts by adversely affecting a scenic vista, damaging scenic resources, degrading the existing visual character or quality of the site and its surroundings, or creating a new source of light or glare affecting area views.

a. Construction

The evidence establishes that no scenic vistas exist within the KOP viewsheds. Furthermore, the OGS, located to the east of SR 160, will not interfere with the views of scenic resources from the highway or damage any scenic resources. (Ex. 300, pp. 4.12-9 - 4.12-10.) The construction laydown area will be on a previously disturbed site and adjacent to industrial uses. Construction will be visible from KOPs 1 and 2, as well as from passing Amtrak trains. Construction of the project's transmission tie-line will occur within the existing line's right-of-way. Areas disturbed during installation of the 230-kV line will be recontoured and hydro-seeded with native grasses. The evidence indicates that these activities will not degrade the existing visual setting or create adverse visual impacts. (Ex. 300, pp. 4.12-10 - 4.12-11.)

Construction lighting could, however, result in off-site intrusions or scatter into the night sky. To minimize this potential impact, we have required the project owner to aim construction night lighting toward the center of the site and shield it, as well as use motion detectors to light areas only when occupied. The evidence establishes that these measures, incorporated in Condition of Certification **VIS-3**, will adequately minimize construction related lighting impacts and assure compliance with the city of Oakley's requirements for night time lighting. (Ex. 300, pp. 4.12-11 - 4.12-12.)

b. Operation

The OGS, when built, will be a long-term part of the local viewshed. The evidence contains a detailed assessment of its impacts in relation to the visual sensitivity and visual change at each of the seven KOPs. Briefly summarized, these aspects of the evidence show:

- **KOP 1**: This represents the vantage point of residents leaving the Sandy Point Mobile Home Park. Existing visual quality is low, due to interruptions of the view by a clutter of elements in the foreground. (Ex. 300, p. 4.12-12.) While it is close to the project site (0.25 mile), views of the OGS will be limited to local residents and guests at a nearby hotel. The evidence characterizes

the overall visual sensitivity as moderate. KOP 1 will experience a high degree of visual change, due primarily to the size and form of the structures associated with the OGS which will reinforce the existing industrial nature of the area. While the impact to KOP 1 could be adverse, the evidence establishes that placing landscape screening trees along the project's perimeter will reduce impacts to below a level of significance. (Ex. 300, pp. 4.12-13 - 4.12-14.) We have included this mitigation in Condition of Certification **VIS-2**.

- **KOP 2**: This view, seen by motorists traveling north on SR 160, is an amalgam of industrial clutter in the foreground with a strong horizon line of trees and the open water of the San Joaquin River beyond. The evidence indicates that the existing visual quality is low due to industrial development and lack of a clear view to the water. The evidence characterizes the overall visual sensitivity as moderate. The OGS will introduce a moderately high visual change due primarily to the air cooling unit and the HRSG units/exhaust stacks. (Ex. 300, pp. 4.12-14 to 4.12-15.) The evidence establishes, however, that proper surface treatment of the structures, as well as landscape screening, will mitigate the project's impacts to below a level of significance. (Ex. 300, p. 4.12-16.) We have included these measures in conditions **VIS-1, VIS-2,** and **VIS-3**.

- **KOP 3**: This is the view looking northwest toward the project site from the intersection of Main Street and Live Oak Road. The existing visual quality, observed primarily by motorists traveling northbound on Live Oak Avenue, is low – moderate. The viewers are typically traveling in an area of mixed uses such as agriculture, industrial, light industrial, commercial, and residential. (Ex. 300, p. 4.12-16.) The OGS will introduce a moderate visual change through its architectural lines and forms; it will be co-dominant with other structures currently in the view. The evidence establishes that, with the mitigation included in Conditions of Certification **VIS-1** (surface treatment), **VIS-2** (landscaping), and **VIS-3** (lighting controls), the OGS will cause a less than significant visual effect. (Ex. 300, p. 4.12-17.)

- **KOP 4**: This is approximately 0.2 miles northwest of site, and represents the view from potential future development on the DuPont property. The existing visual quality is low, consisting in part of a foreground littered with remnants of industrial buildings and railroad tracks. The OGS will constitute a moderate-high visual change due principally to the size of its structures and rectilinear lines. (Ex. 300, p. 4.12-18.) The evidence establishes, however,

that, since the existing visual sensitivity is low, the measures enumerated in Conditions of Certification **VIS-1**, **VIS-2**, and **VIS-3** are adequate to ensure that no significant adverse visual effect results. (*Id*.)

- **KOP 5**: This view (representing that seen by potential future recreational trail users) has a moderate degree of visual sensitivity, primarily due to the existing foreground of wetland grasses and small shrubs, the Central Slough Watercourse, and Mt. Diablo in the background. The view quality is diminished by PG&E's existing Antioch gas terminal building, related structures, and transmission line poles. Viewer concern is low and limited primarily to maintenance crews on the existing DuPont site. (Ex. 300, p. 4.12-19.)

  The OGS air-cooled condenser and steam generators/exhaust stacks will create a stark, well-defined silhouette. The project's rectilinear forms will also create a high degree of contrast with the viewshed's other elements. The evidence characterizes this visual change as moderate-high. The evidence also indicates that, in light of the overall low-moderate visual sensitivity, the mitigation required in conditions **VIS-1**, **VIS-2**, and **VIS-3** will ensure that the project's publicly visible structures will create a less than significant visual effect. (Ex. 300, p. 4.12-20.)

- **KOP 6**: This KOP encompasses views to the south within Almondridge Park, in Antioch, toward existing transmission towers. The existing steel lattice towers will be replaced with monopole towers. Overall visual sensitivity is considered to be moderate-high. The tower replacement will cause a noticeable but small degree of visual change.

  According to the evidence, the monopole form has a reduced footprint and mass when compared to the existing towers. The lines of the new poles will be less cluttered and industrial-looking, having a more "residential-friendly" form. Color contrast is low as both the existing and proposed transmission line supports are finished in gray metal. The texture will change from a highly industrialized structure with a lattice of structural elements to a smooth, single pole with horizontal cross-arms conveying the transmission lines. Overall contrast in the view with the project completed will not change. The new, taller, more numerous poles will not become more dominant in the view than the present towers and the replacement of lattice towers with tubular steel poles will result in slightly less view blockage due to the reduced mass of the

poles. The overall visual change from this KOP is therefore low and will not result in a significant visual effect. (Ex. 300, p. 4.12-21.)

- **KOP 7**: This is the existing view along the project's transmission corridor from the edge of a residential neighborhood. The homes' backyards are adjacent to the corridor. Visibility from this KOP is high, although the number of viewers is moderate. The evidence characterized this combination as creating moderate-high visual sensitivity. (Ex. 300, pp. 4.12-21 to 4.12-22.)

  The replacement poles may be as high as 125 feet; they will be placed in the same locations as the existing towers. The evidence indicates that these poles are less distracting than the existing lattice towers and occupy a smaller footprint, thereby reducing view blockage. Thus, the overall visual change will be low, and the project will not introduce an adverse visual impact to this KOP. (Ex. 300, pp. 4.12-22 - 4.12-24.)

c. Plumes

The OGS will be air-cooled, lacking a cooling tower and associated plumes. The HRSG exhaust stacks may, however, create visible plumes. Modeling contained in the evidence of record predicts that these plumes will occur for less than seven percent of seasonal daylight clear hours. This is significantly below the 20 percent threshold viewed as potentially significant. Moreover, the project's auxiliary boiler is small and will operate too infrequently to create visible plumes of concern. While nighttime plumes may occur, their illumination (and visibility) is adequately prevented by condition **VIS-3**. (Ex. 300, p. 4.12-25.)

d. Cumulative Impacts

The evidence shows that the OGS will add to the heavy industrial character of the viewshed. It will not alter the character of the existing landscape. While the project's exterior night lighting will add incrementally to the existing visual impact, Condition **VIS-3** shields the lighting impacts from public view to the extent feasible. The existing impact will remain, but additional contribution by the OGS will be minimal. (Ex. 300, pp. 4.12-25 - 4.12-27.)

FINDINGS OF FACT

Based on the evidence of record, we find as follows:

1. The Oakley Generating Station will be located in an industrially zoned area of the City of Oakley.
2. The project area possesses no identified scenic vistas or scenic highways.
3. The Key Observation Points (KOPs) of record adequately represent potentially sensitive viewsheds.
4. The Conditions of Certification contain appropriate mitigation measures which, when implemented, will assure that the Oakley Generating Station will not cause significant adverse visual impacts to the viewsheds represented by the KOPs of record.
5. The Oakley Generating Station will not substantially degrade the existing visual character or quality of the site and its surroundings.
6. Construction of the project's linear facilities will cause temporary visual impacts, but no permanent significant visual impacts will result.
7. The primary project elements that could affect visual resources include the project's structures and rectilinear forms, as well as the project's exhaust stacks.
8. The Conditions of Certification contain appropriate mitigation measures to reduce or eliminate visual impacts due to backscatter and glare from night time lighting, as well as from the project components.
9. The predicted occurrence of visible water vapor plumes is less than 7 percent of seasonal daylight clear hours.
10. Condition of Certification **VIS-3** ensures that the occurrence of visible water vapor plumes will be kept to a less than significant level.
11. Implementation of the Conditions of Certification will ensure that the project's visual impacts are less than significant.
12. The Oakley Generating Station will not create or contribute significantly to the creation of adverse cumulative visual impacts.

CONCLUSIONS OF LAW

1. Implementation of the following Conditions of Certification will result in the project causing no significant adverse direct, indirect, or cumulative impacts to visual resources.

2. Implementation of the Conditions of Certification, below, will ensure that the Oakley Generating Station complies with all applicable laws, ordinances, regulations, and standards relating to visual resources identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

VIS-1 The project owner shall treat the surfaces of all project structures and buildings visible to the public such that: a) their colors minimize visual intrusion and contrast by blending with the landscape; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. Surface color treatment shall include painting of HRSGs, turbine inlet filters, and other paintable features in a color scheme which will blend into the horizon of the river, hills, and sky. The project owner shall submit, for CPM review and approval, a specific surface treatment plan that will satisfy these requirements. The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by the CPM. Subsequent modifications to the treatment plan are prohibited without CPM approval.

The treatment plan shall include:

a. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes.

b. A list of each major project structure, building, tank, pipe, wall, and fencing specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number, or according to a universal designation system.

c. One set of 11” x 17” color photo simulations, at life-size scale, of the treatment proposed for use on project structures, including structures treated during manufacture, from a representative point of view (Key Observation Point 1-location shown on Visual Resources Figure 2 of the Final Staff Assessment (Exhibit 300).

d. A specific schedule for completion of the treatment.

e. A procedure to ensure proper treatment maintenance for the life of the project.

Verification: At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to the CPM for review and approval and simultaneously to the City of Oakley or responsible jurisdiction for review and comment. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for review and approval. Prior to the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection. The project owner shall also submit one set of electronic color photographs from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify: a) the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

Landscape Screening

VIS-2 The project owner shall provide landscaping that reduces the visibility of the power plant structures in accordance with local policies. Trees and other vegetation consisting of informal groupings of native shrubs shall be placed around the facility boundaries, in conformance with the Conceptual Landscape Plan, Figures 9a and 9b. The objectives shall be to create landscape screening of sufficient density and height to screen the power plant structures to the greatest feasible extent within the shortest feasible time, and to provide timely replacement for aging or diseased tree specimens on-site in order to avoid future loss of existing visual screening.

The project owner shall submit to the CPM for review and approval and simultaneously to the City of Oakley and the local water purveyor for review and comment a Landscape Documentation Package whose proper implementation will satisfy these requirements. The plan shall include:

a. A detailed Landscape Design Plan, at a reasonable scale (1”=40’ maximum). The plan shall demonstrate how the requirements stated above shall be met. The plan shall provide a detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as is feasible in coordination with project construction. The Landscape Design Plan shall include: a Planting Plan with Plant List (prepared by a qualified professional arborist or landscape architect familiar with local growing conditions) of proposed species specifying installation sizes, growth rates, expected time to maturity, expected size at five years and at maturity; spacing, number, availability, and a discussion of the suitability of the plants for

the site conditions and mitigation objectives, with the objective of providing the widest possible range of species from which to choose; specifications for groundcover, top-dressing of planting areas, and weed abatement measures. Existing trees and species shall be noted on the Landscape Plan. The Landscape Design Plan shall specify all materials to be used for interior roads, walks, parking areas, and hardscape materials (i.e. gravel) to be placed in areas that are not paved or planted.

b. An Irrigation Plan in compliance with the City of Oakley's Water Efficient Landscape Ordinance, Ordinance No. 03-10, Title 4, Chapter 31. The plan shall include the complete Irrigation Design Plan, specifying system components and locations, and shall also include the Water Efficient Landscape Worksheet.

c. Maintenance procedures, and a plan for routine annual or semi-annual debris removal for the life of the project.

d. A procedure for monitoring and replacement of unsuccessful plantings for the life of the project. The plan shall not be implemented until the project owner receives final approval from the CPM.

Verification: The landscaping plan shall be submitted to the CPM for review and approval and simultaneously to the City of Oakley for review and comment at least 90 days prior to installation. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and simultaneously to the City of Oakley a revised plan for review and approval by the CPM. Planting must occur during the first optimal planting season following site mobilization. The project owner shall simultaneously notify the CPM and the City of Oakley, within seven days after completing installation of the landscape plan, that the site is ready for inspection. A report to CPM, equivalent to the City of Oakley's Certificate of Completion Package in Title 4, Chapter 31, shall be submitted in conjunction with the inspection. The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.

Temporary and Permanent Exterior Lighting

VIS-3

Operational Phase:

To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting such that: a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and its immediate vicinity is minimized; and e) the plan complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to City of Oakley for review and comment a lighting mitigation plan that includes the following:

a. Location and direction of light fixtures shall take the lighting mitigation requirements into account.

b. Lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirement.

c. Lighting shall incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated.

d. Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security.

e. All lighting shall be of minimum necessary brightness consistent with operational safety and security.

f. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.

Construction Phase:

The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

a. To the extent feasible given safety and security concerns and operational needs, all lighting shall be of minimum necessary brightness consistent with worker safety and security.

b. All fixed position lighting shall be shielded/hooded, and directed downward and toward the area to be illuminated, to prevent direct illumination of the night sky and direct light trespass (direct light extending outside the boundaries of the power plant site or the site of construction of ancillary facilities, including any security related boundaries).

c. No nighttime lighting or construction activities shall occur in the transmission corridor adjacent to residential properties or in public spaces, such as Almondridge Park in the City of Antioch.

d. Wherever feasible and safe and not needed for security, lighting shall be kept off when not in use.

Verification: Within seven days after the first use of construction lighting, the project owner shall notify the CPM that the lighting is ready for inspection. If the CPM requires modifications to the lighting, within 15 days of receiving that notification the project owner shall implement the necessary modifications and notify the CPM that the modifications have been completed.

At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to discuss the documentation required in the lighting mitigation plan. At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval and simultaneously to the City of Oakley for review and comment a lighting mitigation plan. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval. The project owner shall not order any exterior lighting until receiving CPM approval of the lighting mitigation plan. Prior to commercial operation, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection. Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint and a schedule for implementation. The project owner shall notify the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

APPENDICES

Air Quality

Applicable LORS	Description
Federal	**U.S. Environmental Protection Agency**
Federal Clean Air Act Amendments of 1990 (CAAA), Title 40 Code of Federal Regulations (CFR) Part 50	National Ambient Air Quality Standards (NAAQS).
Clean Air Act (CAA) § 160-169A and implementing regulations, Title 42 United State Code (USC) §7470-7491, 40 CFR 51 & 52 (Prevention of Significant Deterioration Program)	Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of pollutants that occur at ambient concentrations attaining the NAAQS. A PSD permit would not be required for OGS because it would be subject to federally-enforceable operating limitations to emit less than 100 tons per year of NO_2 and CO (BAAQMD 2011a). The BAAQMD implements the PSD program for U.S. EPA within the San Francisco Bay Area.
CAA §171-193, 42 USC §7501 et seq., 40 CFR 51 Appendix S (New Source Review)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. Federal NSR applies to sources of designated nonattainment pollutants. This requirement is addressed through compliance with BAAQMD Regulation 2 Rule 1.
40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Requires monitoring of the natural gas fuel source for the proposed auxiliary boiler.
40 CFR 60, Subpart IIII	New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Requires the diesel fire water pump engine to achieve U.S. EPA Tier 3 emission standards.
40 CFR 60, Subpart KKKK	New Source Performance Standard (NSPS) for Stationary Combustion Turbines. Requires each proposed combustion turbine to achieve 15 parts per million (ppm) NOx or 0.43 pounds NOx per megawatt-hour (lb/MWh), achieve fuel sulfur standards, and provide reporting.
CAA §401 (Title IV), 42 USC §7651, 40 CFR 72 (Acid Rain Program)	Requires reductions in NOx and SO_2 emissions for electrical generating units greater than 25 MW, implemented through the Title V Federal Operating Permit program. This program is within the jurisdiction of the BAAQMD with U.S. EPA oversight [BAAQMD Regulation 2, Rule 7].

Applicable LORS	Description
CAA §501 (Title V), 42 USC §7661, 40 CFR 70 (Federal Operating Permits Program)	Establishes comprehensive federal operating permit program for major stationary sources. Title V permit application required within one year following start of operation. This program is within the jurisdiction of the BAAQMD with U.S. EPA oversight [BAAQMD Regulation 2, Rule 6]
State	**California Air Resources Board and Energy Commission**
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.
H&SC §40910-40930	Permitting of source needs to be consistent with approved clean air plan. The BAAQMD New Source Review program is consistent with regional air quality management plans.
California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (Memorandum of Understanding)	Requires that Energy Commission decision on AFC include requirements to assure protection of environmental quality consistent with Air Resources Board (ARB) programs.
Airborne Toxic Control Measure for Idling (ATCM, 13 CCR §2485)	ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling – Generally prohibits idling longer than five minutes for diesel-fueled commercial motor vehicles.
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM, 17 CCR §93115.6)	ATCM for Stationary Compression Ignition (CI) Engines. Establishes operating requirements and emission standards for emergency standby diesel-fueled CI engines [17 CCR 93115.6]. The emission standard is 0.15 g/bhp-hr diesel particulate matter for emergency engines used fewer than 50 hours per year for maintenance and engine testing.
Local	**Bay Area Air Quality Management District (BAAQMD)**
BAAQMD Regulation 1 – General	Limits releases of air contaminants to not “cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public.” Prohibits contaminants that may endanger “the comfort, repose, health or safety of any such persons or the public, or cause injury or damage to business or property.”

Applicable LORS	Description
BAAQMD Regulation 2, Rule 1 – Permits	General Requirements – Specifies requirements for issuance or denial of permits, exemptions, and appeals against BAAQMD decisions. An Authority to Construct (ATC) is required for any non-exempt source. Natural gas-fired heaters with a heat input rate of less than 10 million Btu per hour are exempt, and stationary internal combustion engines and gas-fired combustion turbines with an output rating of less than 50 horsepower (hp) are exempt.
BAAQMD Regulation 2, Rule 2	New Source Review – Requires preconstruction review including Best Available Control Technology (BACT) for sources with the potential to emit more than 10 pounds per day (NOx, POC, PM10, CO, or SO_2). Requires surrendering offsets for facilities with the potential to emit more than 35 tons per year of NOx or POC, or 100 tons per year of PM10 or SOx.
BAAQMD Regulation 2, Rule 3	Permits – Power Plants – Requires Preliminary Determination of Compliance (PDOC) and Final Determination of Compliance (FDOC) by the BAAQMD Air Pollution Control Officer with public notice and public comment prior to ATC. The BAAQMD would issue the ATC after the Energy Commission certifies the project.
BAAQMD Regulation 2, Rule 5	NSR of Toxic Air Contaminants – Requires preconstruction review for new and modified sources of toxic air contaminants. Contains project health risk limits and requirements for Toxics BACT. See **Public Health**.
BAAQMD Regulation 2, Rule 6	Major Facility Review – Requires an application be submitted for the federal operating permit within 12 months after commencing operation, as specified by Title V federal Clean Air Act.
BAAQMD Regulation 2, Rule 7	Acid Rain – Requires monitoring, recordkeeping, and holding of allowances for pollutants that contribute to the formation of acid rain, as specified by Title IV of the federal Clean Air Act.
BAAQMD Regulation 6	Particulate Matter – Limits particulate matter and visible emissions to less than 20% opacity. Prohibits emissions from any activity for more than 3 minutes in any one hour that result in visible emissions as dark or darker than Number 1 on the Ringlemann Chart.
BAAQMD Regulation 7	Odorous Substances – Prohibits the discharge of any odorous substances which remain odorous at the property line after dilution with four parts of odor-free air. Limits the emissions of ammonia to no more than 5,000 parts per million (ppm).

Applicable LORS	Description
BAAQMD Regulation 8	Organic Compounds – Requires use of architectural coatings and solvents meeting POC limits and compliant coatings. Emissions from solvent use must not exceed 5 tons annually.
BAAQMD Regulation 8, Rule 40	Aeration of Contaminated Soil and Removal of Underground Storage Tanks – Prohibits aeration of soil contaminated with organic chemical or petroleum chemical spills except through a control device that is at least 90% effective. However, no remediation activities are currently proposed in conjunction with preparing the site for the OGS. See **Public Health**.
BAAQMD Regulation 9, Rule 1	Sulfur Dioxide – Prohibits emissions causing SO2 ground level concentrations exceeding 0.5 ppm averaged continuously for three minutes or 0.25 ppm over 60 minutes, consistent with the California Ambient Air Quality Standard.
BAAQMD Regulation 9, Rule 7	Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters – Specifies emission limits of 9 ppm NOx and 400 ppm CO, applicable to the auxiliary boiler.
BAAQMD Regulation 9, Rule 7	Stationary Gas Turbines – Specifies emission limits of 5 ppmvd NOx or 0.15 pounds NOx per megawatt-hour (lb/MWh), applicable to the proposed combustion turbines.

Greenhouse Gas

Applicable LORS	Description
Federal	
Mandatory Reporting of Greenhouse Gases (40 CFR 98, Subpart D)	The mandatory reporting rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tonnes of CO_2-equivalent emissions per year.
Prevention of Significant Deterioration Program (40 CFR 51 & 52)	Any new source of GHG exceeding 100,000 tons per year CO_2-equivalent and commencing construction after July 1, 2011 would be considered to be a major stationary source and subject to PSD permitting requirements including review of Best Available Control Technology.
State	
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)	California Global Warming Solutions Act of 2006. This act requires the California Air Resources Board (ARB) to enact standards that will reduce GHG emissions to 1990 levels. Electricity production facilities will be regulated by the ARB.
California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq.	ARB regulations implementing mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)
California Code of Regulations, tit. 20, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	The regulations prohibit utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 $MTCO_2$/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lb CO_2/MWh). Known as SB 1368 (Perata, Chapter 598, Statutes of 2006) Emission Performance Standard.

Alternatives

CEQA

Energy Commission staff is required by agency regulations to examine the "feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment." (Cal. Code Regs., tit. 20, § 1765).

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations, section 15126.6(a), requires an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project."

In addition, the analysis must address the "no project" alternative. [Cal. Code Regs., tit. 14, § 15126.6, subd. (e).] The analysis should identify and compare the impacts of the various alternatives, but analysis of alternatives need not be in as much detail as the analysis of the proposed project.

The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3).) However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (City of Santee v. County of San Diego (4th District 1989) 214 Cal. App.3d 1438.)

Warren-Alquist Act

The Warren-Alquist Act provides clarification as to when it may not be reasonable to require an applicant to analyze alternative sites for a project. An alternative site analysis is not required as part of an AFC when a *natural gas-fired thermal power plant* is (1) proposed for development at an existing industrial site, and (2) "the project has a strong relationship to the existing industrial site and therefore it is reasonable not to analyze alternative sites for the project." [Pub, Res. Code § 25540.6, subd. (b).]

Biological Resources

Applicable LORS	Description
Federal	
Clean Water Act of 1977 (Title 33, United States Code, sections 1251–1376, and Code of Federal Regulations, part 30, Section 330.5(a)(26))	Prohibits the discharge of dredged or fill material into the waters of the United States without a permit. The administering agency is the U.S. Army Corps of Engineers.
Endangered Species Act (Title 16, United States Code, sections 1531 et seq.; Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for the protection of threatened and endangered plant and animal species and their critical habitat. The administering agencies are USFWS and National Marine Fisheries Service.
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act. The administering agency is USFWS.
Migratory Bird Treaty Act (Title 16, United States Code, sections 703–711)	Prohibits the take or possession of any migratory nongame bird (or any part of such migratory nongame bird), including nests with viable eggs. The administering agency is USFWS.
Migratory Bird Treaty Reform Act (70 F.R. 12710-12716 (March 15, 2005))	This Migratory Bird Treaty Reform Act includes a significant change to the Migratory Bird Treaty Act (MBTA). The law now excludes those species considered to be not native to the United States. The Secretary of the Interior published in the Federal Register the final list of bird species to which the MBTA does not apply. The administering agency is USFWS.
State	
California Endangered Species Act (Fish and Game Code, sections 2050 et seq.)	Protects California's rare, threatened, and endangered species. The administering agency is CDFG.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals that are classified as rare, threatened, or endangered in California. The administering agency is CDFG.
California Code of Regulations (Title 20,	Protects "areas of critical concern" and "species of special concern" identified by local, state, or federal

Applicable LORS	Description
sections 1702(q) and (v))	resource agencies within the project area, including the California Native Plant Society (CNPS). The administering state agency is CDFG.
Natural Communities Conservation Planning Act (NCCPA) of 2002 (Fish and Game Code, sections 2800 through 2835)	Established the NCCPA program, which is a cooperative effort between public and private partners that uses a broad-based ecosystem approach to protecting multiple habitats and species. The administering agency is CDFG.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits take of such species. The administering agency is CDFG.
Native Plant Protection Act (Fish and Game Code, section 1900 et seq.)	Designates rare, threatened, and endangered plants in California and prohibits the taking of listed plants. The administering agency is CDFG.
Nest or Eggs (Fish and Game Code, section 3503)	Prohibits take, possession, or needless destruction of the nest or eggs of any bird. The administering agency is CDFG.
Birds of Prey (Fish and Game Code, section 3503.5)	Specifically protects California's birds of prey in the orders Falconiformes and Strigiformes by making it unlawful to take, possess, or destroy any such birds of prey or to take, possess, or destroy the nest or eggs of any such bird. The administering agency is CDFG.
Migratory Birds (Fish and Game Code, section 3513)	Prohibits take or possession of any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird. The administering agency is CDFG.
Significant Natural Areas (Fish and Game Code section 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat. The administering agency is CDFG.
Public Resources Code, sections 25500 and 25527	Prohibits siting of facilities in certain areas of critical concern for biological resource, such as ecological preserves, refuges, etc. The administering agency is the Energy Commission (with comment from CDFG).
Local	
East Contra Costa County Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP)	Provides for the protection of natural resources, while streamlining the environmental permitting process for impacts on endangered species; provides take authorization under the federal Endangered Species Act and Natural Community Conservation Planning Act (NCCPA) for covered species; and provides for species, wetland, and ecosystem conservation contributing to endangered species recovery. The OGS project is a covered activity eligible to seek take coverage through the ECCC HCP/NCCP. Not all state and federally listed species that could be impacted by the OGS project are

Applicable LORS	Description
	covered by the ECCC HCP/NCCP (i.e. state and federally listed species which occur at the Antioch Dunes NWR are not covered under the ECCC HCP/NCCP).
City of Oakley General Plan	Provides a planning framework for preservation of important ecological and biological resources in consideration of providing adequate resources and infrastructure for projected population growth. The OGS site is within the jurisdiction of the City of Oakley, however 1.4 miles of the 2.4-mile proposed transmission line route is within the City of Antioch.
City of Oakley Tree Preservation Ordinance	Provides for the preservation of certain protected trees in the City of Oakley. Provides for the protection of trees on private property by controlling tree removal while allowing for reasonable enjoyment of private property rights and property development.
City of Antioch General Plan – Resource Management Element	Provides a planning framework for protection of conservation of resources and preservation of open space in consideration of providing adequate resources and infrastructure for projected population growth. The OGS site is not within the jurisdiction of the City of Antioch, however 1.4 miles of the 2.4-mile proposed transmission line route is within the City of Antioch.
City of Antioch Tree Preservation Ordinance	Provides for the preservation of certain protected trees in the City of Antioch. Provides for the protection of trees with the goal of retaining as many trees as possible while recognizing individuals' property rights.

Cultural Resources

Applicable LORS	Description
State	
Public Resources Code 5097.98(b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance.
California Health and Safety Code, Section 7050.5	This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	
City of Oakley General Plan *(City of Oakley, 2002. Amended 2010)*	Open Space and Conservation Element Goal 6.4 Encourage preservation of cultural resources within the Plan Area. Policy 6.4.1 Preserve areas that have identifiable and important archaeological or paleontological significance.

Applicable LORS	Description
City of Antioch General Plan *(City of Antioch, 2003)*	Cultural Resource Objective: Preserve archaeological, paleontological, and historic resources within the Antioch Planning Area for the benefit and education of future residents. Cultural Resource Policies: a. Require new development to analyze, and therefore avoid or mitigate impacts to archaeological, paleontological, and historic resources. Require surveys for projects having the potential to impact archaeological, paleontological, or historic resources. If significant resources are found to be present, provide mitigation in accordance with applicable CEQA guidelines and provisions of the California Public Resources Code. b. If avoidance and/or preservation in the location of any potentially significant cultural resources is not possible, the following measures shall be initiated for each impacted site: • Native American monitoring • Development of a test-level research design • Complete the excavation program as specified in the research design. • Development a Treatment Plan to mitigate project effects on cultural resources, if they cannot be avoided. • Implementation of Treatment Plan. d. As a standard condition of approval for new development projects, require that if unanticipated cultural or paleontological resources are encountered during grading, alteration of earth materials in the vicinity of the find be halted until a qualified expert has evaluated the find and recorded identified cultural resources. e. Preserve historic structures and ensure that alterations to historic buildings and their immediate settings are compatible with the character of the structure and surrounding neighborhood.

Facility Design

Applicable LORS	Description
Federal	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards
State	2010 (or the latest edition in effect) California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	Contra Costa County regulations and ordinances City of Oakley regulations and ordinances
General	American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)

Geology and Paleontology

Applicable LORS	Description
Federal	The proposed OGS is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State	
California Building Code (2010)	The CBC (2010) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control). The CBC has adopted provisions in the International Building Code (ICC 2006).
Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621–2630	Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. The project site is not located within a designated Alquist-Priolo Fault Zone.
The Seismic Hazards Mapping Act, PRC section 2690–2699	Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches.
PRC, Chapter 1.7, sections 5097.5 and 30244	The code regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.
Warren-Alquist Act, PRC, sections 25527 and 25550.5(i)	The Warren-Alquist Act requires the Energy Commission to “give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites…” With respect to paleontologic resources, the Energy Commission relies on guidelines from the Society for Vertebrate Paleontology (SVP), indicated below.
California Environmental Quality Act (CEQA), PRC sections 15000 et seq., Appendix G	Mandates that public and private entities identify the potential impacts on the environment during proposed activities. Appendix G outlines the requirements for compliance with CEQA and provides a definition of significant impacts on a fossil site.
Society for Vertebrate Paleontology (SVP), 1995	The “Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.

Applicable LORS	Description
Local	
California Building Code (2010)	These codes address the excavation, grading, and earthwork construction, not limited to construction relating to earthquake safety and seismic activity hazards.
Contra Costa County General Plan (2005) Section 9.7 Item 9-31 to 9-35	The section requires a general plan for long term development. Under this protection, paleontological resources shall be protected and preserved.
City of Oakley General Plan 2020 (2002) Section 6.4	Section states “There have been few archeological or paleontological finds in the City of Oakley. However, given the rich history of Plan Area, City will continue to require site evaluation prior to development of undeveloped areas, as well as required procedures if artifacts are unearthed during construction.”

Hazardous Materials Management

Applicable LORS	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	Established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on risk management plans (42 USC §112(r)	Requires states to implement a comprehensive system informing local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.800	The U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters.
Title 49, Code of Federal Regulations, Part 190	Outlines gas pipeline safety program procedures.
Title 49, Code of Federal Regulations, Part 191	Addresses transportation of natural and other gas by pipeline: annual reports, incident reports, and safety-related condition reports. Requires operators of pipeline systems to notify the DOT of any reportable incident by telephone and then submit a written report within 30 days.
Title 49, Code of Federal Regulations, Part 192	Addresses transportation of natural and other gas by pipeline and minimum federal safety standards, specifies minimum safety requirements for pipelines including material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also contains regulations governing pipeline construction (which must be followed for Class 2 and Class 3 pipelines) and the

	requirements for preparing a pipeline integrity management program.
Federal Register (6 CFR Part 27) interim final rule	A regulation of the U.S. Department of Homeland Security that requires facilities that use or store certain hazardous materials to submit information to the department so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented.
State	
Title 8, California Code of Regulations, section 5189	Requires facility owners to develop and implement effective safety management plans that ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the Risk Management Plan (RMP) process.
Title 8, California Code of Regulations, section 458 and sections 500 to 515	Sets forth requirements for the design, construction, and operation of vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes, including the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, the American National Standards Institute (ANSI) K61.1 and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia.
California Health and Safety Code, section 25531 to 25543.4	The California Accidental Release Program (CalARP) requires the preparation of a Risk Management Plan (RMP) and off-site consequence analysis (OCA) and submittal to the local Certified Unified Program Agency for approval.
California HSC Sections 25270 through 25270.13	Requires the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan if 10,000 gallons or more of petroleum is stored on-site. These regulations also require the immediate reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Authority (CUPA).
California Health and Safety Code, section 41700	Requires that “No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
California Public Utilities Commission	Contains standards for gas piping construction and service.

General Order 112-E and 58-A	
Local	
Contra Costa County Zoning Ordinance 98-48	Requires a Safety Plan and a RMP.
Uniform Fire Code Article 79 and 80	Require secondary containment, monitoring and treatment for accidental releases of toxic gases. The Certified Unified Program Agency (CUPA) with the responsibility to review Risk Management Plans (RMPs) and Hazardous Materials Business Plans (HMBPs) is the Contra Costa County Health Services Department, Hazardous Materials Program (CCCHSD-HMP). With regard to seismic safety issues, construction and design of buildings and vessels storing hazardous materials will meet the seismic requirements of the 2007 California Building Code for Seismic Category D (OG2009a, Appendix 2C, Section 2C4.4.7)

Land Use

Applicable LORS	Description
Federal	None
State	None
Local	
Contra Costa County Zoning Ordinance (Contra Costa Co. 2008)	The Contra Costa County zoning ordinance (Title 8 of the Contra Costa County Code) establishes zoning districts and contains regulations governing the use of land and improvement of real property within zoning districts. The Contra Costa Zoning Ordinance supports the implementation of the General Plan, and specifies what uses are permitted, conditionally permitted, or prohibited within each zone. In 1999, the city of Oakley became incorporated and retained the county's general plan and zoning designations. A general plan was then adopted in 2002, followed by a municipal code in 2006. However, some properties, including the proposed project site, retained the county's zoning designations. Therefore, this analysis includes proposed project's consistency with the county's applicable zoning ordinances.
City of Oakley 2020 General Plan (COO 2010a)	The City of Oakley's General Plan was originally adopted in 2002. The Contra Costa County General Plan assumed a planning horizon of 1995 – 2010 and addressed growth, development, housing, and recreational use within the Oakley community, as well as the lands that were unincorporated County lands at the time the County general plan was adopted. The primary function of the General Plan is to prescribe growth within the region in an orderly fashion and to allocate specific areas for development that will cause the least impact to the environment. On January 26, 2010, the city adopted an amended version of the plan.
City of Antioch General Plan (COA 2003)	The City of Antioch's General Plan contains policies pertaining to growth management, land use, community image and design, economic development, circulation, public services and facilities, housing, resource management and environmental hazards. Many of the policies are aimed at balancing housing and employment growth and enhancing the visual character and image of the community, anticipating significant future growth.
City of Antioch Zoning Ordinance (COA 2009)	The city's zoning ordinance is part of the municipal code and implements the policies of the general plan. Title 9 of the city's municipal code is related to planning and zoning.

Noise and Vibration

Applicable LORS	Description
Federal	
(OSHA): 29 U.S.C. § 651 et seq.	Protects workers from the effects of occupational noise exposure.
State	
(Cal/OSHA): Cal. Code Regs., tit. 8, §§ 5095–5099	Protects workers from the effects of occupational noise exposure.
Local	
Contra Costa County General Plan, Noise Element Contra Costa County Code (Title 7, §716-8.1008 Nuisances) City of Oakley General Plan, Noise Element City of Oakley Municipal Code City of Antioch General Plan, Noise Element City of Antioch Noise Ordinances	Establishes acceptable noise levels and limits hours of construction. Requires that noise be controlled to prevent public nuisances. Establishes acceptable noise levels. Limits hours of construction. Establishes acceptable noise levels and limits hours of construction. Establishes acceptable noise levels and limits hours of construction.

Public Health

Applicable LORS	Description
Federal	
Clean Air Act section 112 (42 U.S. Code section 7412)	Requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).
State	
California Health and Safety Code sections 39650 et seq.	These sections mandate the California Air Resources Board (CARB) and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.
California Health and Safety Code section 41700	This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
California Code of Regulations, Title 22, section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system re-circulating water to minimize the growth of Legionella and other micro-organisms.
Local	
Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 5.	Requires safe exposure limits for Toxic Air Pollutants (TACs), use of Best Available Control Technology (BACT) and New Sources Review (NSR).

POWER PLANT EFFICIENCY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

POWER PLANT RELIABILITY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

Socioeconomics

Applicable LORS	Description
State	
California Education Code, Section 17620 California Government Code, Sections 65996-65997	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities. Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education **Code**, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.
Local	
City of Oakley Park Land Dedication In-Lieu Fee (Ordinance No. 03-03)	The Park Land Dedication was enacted pursuant to authority granted by Section 66477 of the Government Code of the State of California ("Quimby Act").
City of Oakley Park Impact Fee (Authorized by Ordinance No. 05-00, adopted by Resolution No. 19-03)	The Oakley City Council has determined that a park impact fee is needed to finance public facilities and to pay for each development's fair share of the construction and acquisition costs of improvements.
City of Oakley Public Facilities Fee (Authorized by Ordinance No. 05-00, adopted by Resolution No. 18-03)	The Oakley City Council has determined that a public facilities impact fee is needed to finance public facilities and to pay for each development's fair share of the construction and acquisition costs of improvements.
Fire Facilities Impact Fee (Ordinance No. 09-01)	The Oakley City Council has determined that a fire impact fee is needed to finance those fire-fighting facilities and to pay for each development's fair share of the construction and acquisition costs of those improvements.

Traffic and Transportation

Applicable LORS	Description
Federal	
Aeronautics and Space Title 14 Code of Federal Regulations (CFR), part 77 Objects Affecting Navigable Airspace (14 CFR 77)	Establishes standards for determining physical obstructions to navigable airspace; sets noticing and hearing requirements; and provides for aeronautical studies to determine the effect of physical obstructions on the safe and efficient use of airspace.
State	
California Vehicle Code (CVC), division 2, chapter 2.5; div. 6, chap. 7; div. 13, chap. 5; div. 14.1, chap. 1 & 2; div. 14.8; div. 15	Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
California Streets and Highway Code, division 1 & 2, chapter 3 & chapter 5.5	Includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits.
California Street and Highway Code §§117, 660-711	Requires permits from California Department of Transportation (Caltrans) for any roadway encroachment during oversize truck transportation and delivery. Such encroachment permits are also needed for roads that would include construction from new sewer line connections or be crossed by overhead transmission line stringing, as well as for parallel roads where transmission line construction activities would require the use of any public right-of-way (e.g., temporary lane closures).
California Street and Highway Code §§660-711	Requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.
Local	
Contra Costa County 2009 Countywide Comprehensive Transportation Plan	The city of Oakley is located within the East County planning area of the Contra Costa County 2009 Countywide Comprehensive Transportation Plan (CTP). As designated in the Contra Costa County 2009 Countywide CTP, multimodal transportation service objectives for the East County planning area indicate the following performance

	standards: • SR 4 and the SR 4 Bypass: Delay Index should not exceed 2.5 during the AM or PM Peak Period for these facilities; HOV lane utilization should exceed 600 vehicles per lane in the peak direction at peak hour. • Signalized Suburban Arterial Routes: Level of Service D (by Contra Costa County Transportation Authority Level of Service methodology). • All other Signalized Suburban Arterials: Peak hour volume to capacity ratio no worse than 0.85. • Rural Unsignalized Roadways: Level of Service D (by roadway segment). • Traffic Management Plan (TMP) Sites: Roadway segments subject to a TMP may be analyzed using a measure other than Level of Service or V/C during TMP operations. •
Contra Costa County Oversize Vehicle Permit	Contra Costa County requires a permit before operating any extra-legal loaded vehicles within the County.
City of Oakley General Plan Circulation Element	• Policy 3.1.1: Strive to maintain Level of Service D as the minimum acceptable service standard for intersections during peak periods (except those facilities identified as Routes of Regional Significance). • Policy 3.1.2: For those facilities identified as Routes of Regional Significance, maintain the minimum acceptable service standards specified in the East County Action Plan Final 2000 Update, or future Action Plan updates as adopted.
City of Oakley Long Range Roadway Plan	This Long Range Roadway Plan supports the determination of major roadway improvements that have been incorporated into the General Plan, and summarizes the analysis conducted to ensure that the roads adequately serve Oakley's growth. The Long Range Roadway Plan has adopted Level of Service D, or a volume-to-capacity (V/C) ratio of 0.90, as the threshold of acceptability for signalized intersections. Routes of Regional Significance are subject to special performance standards. The level of service established for a route of regional significance in Oakley is a peak hour Level of Service D at signalized intersections, and a peak hour Level of Service E for any individual movement at unsignalized intersections.
City of Oakley Transportation Permit	The city of Oakley's transportation permit requires approval from the Public Works Department before operating any oversized loads on city roads.

Transmission Line Safety and Nuisance

Applicable LORS	Description
Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space"	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space"	Addresses the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA in cases of potential for an obstruction hazard.
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Interference with Radio Frequency Communication	
Federal	
Title 47, CFR, section 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.
State	
California Public Utilities Commission (CPUC) General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate interference.
Audible Noise	
Local	
City of Oakley General Plan.	Establishes plans for ensuring compatibility between noise levels and land uses.
City of Oakley Municipal Code.	Includes quantitative limits on allowable noise for various land uses.
City of Antioch General Plan	Establishes plans for ensuring compatibility between noise levels and land uses.
City of Antioch Municipal Code	Includes noise regulations associated with construction and operation of various land uses, among other niose-related regulations.
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, "Rules for Overhead Electric Line Construction"	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders"	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.

Applicable LORS	Description
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
Industry Standards	
Institute of Electrical and Electronics Engineers (IEEE) 1119, “IEEE Guide for Fence Safety Clearances in Electric-Supply Stations”	Specifies the guidelines for grounding-related practices within the right-of-way and substations.
Electric and Magnetic Fields	
State	
CPUC GO-131-D, ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California”	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR sections 1250–1258, “Fire Prevention Standards for Electric Utilities”	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.

Transmission System Engineering

Applicable LORS	Description
California Public Utilities Commission General Order 95, *Rules for Overhead Electric Line Construction*,	Formulates uniform requirements for construction of overhead transmission lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, and operation or use of overhead electric lines and to the public in general.
California Public Utilities Commission General Order 128, *Rules for Construction of Underground Electric Supply and Communications Systems*,	Formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance, and operation or use of underground electric lines and to the public in general.
National Electric Safety Code, 1999	Provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation
The Western Electricity Coordinating Council (WECC) Planning Standards	Merged with the North American Electric Reliability Corporation (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority, and preservation of interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage, and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on section I. A. of the standards, entitled *NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table,* and on section I. D., entitled *NERC and WECC Standards for Voltage Support and Reactive Power*. These standards require

	that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage, and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, its uncontrolled loss is not permitted (WECC 2002).
NERC Reliability Standards for the Bulk Electric Systems of North America	Provides national policies, standards, principles, and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability Standards provide for system performance levels under normal and contingency conditions. While these reliability standards are similar to NERC/WECC standards, certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards with regard to power flow and stability simulations for transmission system contingency performance. The NERC Reliability Standards apply not only to interconnected system operation but also to individual service areas (NERC 2006).
California ISO Planning Standards	Provides standards and guidelines to assure adequacy, security, and reliability in the planning of the California ISO transmission grid facilities. The California ISO Standards incorporate the NERC/WECC and NERC standards. With regard to power flow and stability simulations, these standards are similar to the NERC/WECC or NERC standards for transmission system contingency performance. However, the California ISO standards also provide some additional requirements that are not found in the NERC/WECC or NERC standards. The California ISO standards apply to all participating transmission owners interconnecting to the grid controlled by California ISO. They also apply when there are any impacts to the California ISO grid due to facilities interconnecting to adjacent grids not operated by California ISO (California ISO 2002a).

The California ISO/FERC (Federal Energy Regulatory Commission) Electric Tariff	Provides guidelines for construction of all transmission additions/upgrades within the grid controlled by California ISO. The California ISO determines the need for the proposed project where it will promote economic efficiency or maintain system reliability. The California ISO also determines the cost responsibility of the proposed project and provides an operational review of all facilities that are to be connected to the California ISO grid (California ISO 2003a).

Visual Resources

Applicable LORS	Description
Federal	
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (PL 109-59; 2005). Expired 2009.	Pertains to sites located on or in vicinity of federally-managed lands. OGS site is not located on federally managed lands.
National Scenic Byway (ISTEA 1991, Title 23, section 162)	Pertains to sites located in the vicinity of National Scenic Highways. OGS is not located in the vicinity of a recognized National Scenic Byway.
State	
California Streets and Highways Code, sections 260 through 263 – Scenic Highways	Ensures the protection of highway corridors that reflect the State's natural scenic beauty. The State of California has not formally designated as scenic any of the roads or highways within or adjacent to the project area. In the vicinity of the OGS, Route 160 in Contra Costa County has been listed as eligible as a State Scenic Highway. State Route 160 in Sacramento County, across the river from the project site, is a designated State Scenic Highway. Eligible status provides no protection unless local laws or ordinances are enacted to protect it.
Local	
Contra Costa County General Plan, adopted in 2005. Transportation and Circulation Element-Scenic Routes 5.9 Policy 5-43	Scenic Route Policies: 5-43 Scenic corridors shall be maintained with the intent of protecting attractive natural qualities adjacent to various roads throughout the County. CCC-GP Figure 5.4 identifies Route 160 near the project site as a Scenic Highway/Expressway.
Contra Costa County General Plan, adopted in 2005. Transportation and Circulation Element-Scenic Routes 5.9 Policy 5-45	Scenic views observable from scenic routes shall be conserved, enhanced and protected to the extent possible.

Applicable LORS	Description
Contra Costa County General Plan, adopted in 2005. Transportation and Circulation Element-Scenic Routes 5.9 Policy 5-52	Aesthetic design flexibility of development projects within a scenic corridor shall be encouraged.
Contra Costa County General Plan, adopted in 2005. Open Space Element-Scenic Resources Policies and Goals 9.6 Goal 9-12	To preserve the scenic qualities of the San Francisco Bay/Delta estuary system and the Sacramento/San Joaquin River/Delta shoreline.
Contra Costa County General Plan, adopted in 2005. Open Space Element-Scenic Resources Policies and Goals 9.6 Policy 9-20	New power lines shall be located parallel to existing lines in order to minimize their visual impact.
Draft Eastern Contra Costa County Trails Master Plan, July 2009	Proposed trails are located both north of the site near the shoreline and on the southern perimeter of the site along the AT&SF Railroad ROW. Approved by the Board of Supervisors and will be incorporated into the General Plan with the next revision.
East Bay Regional Parks District, Existing and Potential Parklands and Trails, Master Plan amended 11/06/2007.	Antioch/Oakley Regional Shoreline is a 7.5-acre park at foot of Antioch Bridge (SR 160) which straddles the Antioch/Oakley City Limits and offers fishing and picnicking facilities. Big Break Regional Shoreline is a linear park stretching more than two miles along the San Joaquin River east of the project site. Potential recreation trails have been identified along Big Break Shoreline in the vicinity of the project site.
Contra Costa Transportation Authority: Countywide Bicycle and Pedestrian Plan, June 14, 2010. Figure 4.	Plan includes proposed trails along Bridgehead Road and Big Break Shoreline in the project vicinity.

Applicable LORS	Description
City of Oakley 2020 General Plan /Contra Costa County Title 8 (Zoning) Chapter 84-62:H-I Heavy Industrial District	The OGS site is designated for a land use of Utility Energy (UE). The project site is currently zoned SP-3. As the DuPont Bridgehead Road Specific Plan has not yet been adopted, the underlying applicable zoning from the General Plan is Heavy Industry (H-I). (City of Oakley letter dated 4-5-2010).
City of Oakley Municipal Code Title 4, Chapter 31 Water Efficient Landscape Ordinance (WELO)	Municipal Code amended by Ordinance 03-10 establishing Water Efficient Landscape Requirements. Landscape areas exceeding 2,500 square feet must meet the regulations.
River Oaks Crossing Specific Plan, August 2008	River Oaks Crossing Specific Plan permits the development of the parcel immediately south of the OGS site as commercial property featuring large-scale retail buildings mixed with smaller retail and parking areas.
Draft DuPont Bridgehead Road Specific Plan	The Draft DuPont Bridgehead Road Specific Plan excludes Utility Energy as a permitted land use and adds new designations to the General Plan for this area. The Draft plan has not been adopted.

Waste Management

Applicable LORS	Description
Federal	
Title 42, United States Code (U.S.C.), §§6901, et seq. Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al).	The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) et al, establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions and responsibilities, as well as research, training, and grant funding provisions.
Title 42, U.S.C., §§ 9601, et seq. Comprehensive Environmental Response, Compensation and Liability Act	The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment, among other things.
Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes.	These regulations were established by United States Environmental Protection Agency (USEPA) to implement the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes. USEPA implements the regulations at the federal level. However, California is an authorized state so the regulations are implemented by state agencies and authorized local agencies in lieu of USEPA.
Title 49, CFR, Parts 172 and 173. Hazardous Materials Regulations	U.S. Department of Transportation established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40, CFR, section 262.20.

Applicable LORS	Description
State	
California Health and Safety Code (HSC), Chapter 6.5, §25100, et seq. Hazardous Waste Control Act of 1972, as amended.	This California law creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements. The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level.
Title 22, California Code of Regulations (CCR), Division 4.5. Environmental Health Standards for the Management of Hazardous Waste	These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters. The Title 22 regulations are established and enforced at the state level by DTSC. Some generator standards are also enforced at the local level by CUPAs.
California Health and Safety Code,, Chapter 6.11 §§25404 – 25404.9 Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)	The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs. The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as Certified Unified Program Agencies (CUPAs). Contra Costa County Department of Environmental Health is the area CUPA.
Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §15100, et seq. Unified Hazardous	While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses. • Article 9 – Unified Program Standardized Forms and Formats (§§

Applicable LORS	Description
Waste and Hazardous Materials Management Regulatory Program	15400-15410). • Article 10 – Business Reporting to CUPAs (§§15600 – 15620).
Public Resources Code, Division 30, §40000, et seq. California Integrated Waste Management Act of 1989.	The California Integrated Waste Management Act of 1989 (as amended) establishes mandates and standards for management of solid waste. Among other things, the law includes provisions addressing solid waste source reduction and recycling, standards for design and construction of municipal landfills, and programs for county waste management plans and local implementation of solid waste requirements.
Title 14, CCR, Division 7, §17200, et seq. California Integrated Waste Management Board	These regulations further implement the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions.
California Health and Safety Code, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq. Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14).	This law was enacted to expand the State's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (~ 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a 4 year cycle, with a summary progress report due to DTSC every 4th year.
Title 22, CCR, §67100.1 et seq. Hazardous Waste Source Reduction and Management Review.	These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the Act.
Local	
Contra Costa County Health Services Hazardous Materials Programs	Certified Unified Program Agency (CUPA) Program This program consolidates, coordinates and makes consistent the administrative requirements, permitting, inspection activities, enforcement activities and fees for hazardous waste and hazardous materials programs in each jurisdiction.
Contra Costa County Health Services Hazardous Materials Incident Notification	Provides oversight for spills and releases of hazardous materials.

Applicable LORS	Description
Policy	
Contra Costa County Integrated Waste Management Plan.	Provides guidance for local management of solid waste and household hazardous waste (incorporates the county's source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste). Waste will be recycled in a manner consistent with applicable LORS.
Oakley Municipal Code, Title 4 Public Health, Safety & Welfare Regulations, Chapter 20 – Solid Waste Collection & Regulations	Any construction, demolition and renovation project within the City which has a total cost of $100,000 or more shall be subject to this section. Upon applying for a building permit, the applicant shall describe, on forms provided by the City, how the applicant will divert fifty percent (50%) or more of all C&D debris from the waste stream.
City of Antioch Municipal Code Article II, Title 6, Chapter 3,	Any construction, demolition and renovation project within the City which has a total cost of $75,000 or more shall be subject to this section. Projects which exceed this cost shall submit a Waste Management Plan in accordance with this article.

Worker Safety and Fire Protection

Applicable LORS	Description
Federal	
Title 29 U.S. Code (USC) section 651 et seq (Occupational Safety and Health Act of 1970)	This act mandates safety requirements in the workplace with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC § 651).
Title 29 Code of Federal Regulation (CFR) sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations)	These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.
29 CFR sections 1952.170 to 1952.175	These sections provide federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the federal requirements found in 29 CFR sections 1910.1 to 1910.1500.
State	
Title 8 California Code of Regulations (Cal Code Regs.) all applicable sections (Cal/OSHA regulations)	These sections require that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.
24 Cal Code Regs. section 3, et seq.	This section incorporates the current addition of the California Building Code.
Health and Safety Code section 25500, et seq.	This section presents Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.
Health and Safety Code sections 25500 to 25541	These sections require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.

Applicable LORS	Description
Local (or locally enforced)	
2007 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9)	National Fire Protection Association (NFPA) standards are incorporated into the California Fire Code. The fire code contains general provisions for fire safety, including road and building access, water supplies, fire protection and life safety systems, fire-resistive construction, storage of combustible materials, exits and emergency escapes, and fire alarm systems. Enforced by the East Contra Costa Fire Protection District.

Docket Number: **09-AFC-4**

Project Name: **OAKLEY GENERATING STATION**

FINAL EXHIBIT LIST

Exhibit	Docket Transaction Number	Brief Description	Offered	Admitted	Withdrawn/ Not Admitted
Applicant's Exhibits					
1	52219	**Contra Costa Generating Station, LLC's Application for Certification (AFC) Volumes I & II**; dated June 30, 2009, and docketed on June 30, 2009.	**x**	**x**	
2	52934	**Contra Costa Generating Station, LLC's Data Adequacy Supplement**; dated August, 2009, and docketed on August 20, 2009.	**x**	**x**	
3	53217	**Bay Area Air Quality Management District (BAAQMD) Letter Re: Preliminary Review of the Determination of Compliance/Authority to Construct Application**; dated September 9, 2009, and docketed on September 15, 2009.	**x**	**x**	
4	53554	**Contra Costa Generating Station, LLC's Notification of Project Name Change**; dated October 5, 2009, and docketed on October 5, 2009.	**x**	**x**	
5	53784	**Contra Costa Generating Station, LLC's Supplement to the Application for Certification (AFC)**; dated October 12, 2009, and docketed on October 20, 2009.	**x**	**x**	
6	53985	**Contra Costa Generating Station, LLC's Response to CEC Staff's Proposed Schedule**; dated November 5, 2009, and docketed on November 5, 2009.	**x**	**x**	
7	54315	**Atmospheric Dynamics Wind Tunnel Modeling Protocol for the Oakley Generating Station**; dated November, 2009, and docketed on December 2, 2009.	**x**	**x**	

8	54440	**URS/Dames & Moore (Frederick Quivik, Ph.D.) Determination of Eligibility**; dated October 18, 2000, and docketed on December 15, 2009.	**x**	**x**	
9	55346	**Contra Costa Generating Station, LLC's Response to the Oakley Generating Project Data Request Set 1 (#1-43) (Attachment DR43-1)**; dated February, 2010, and docketed on February 11, 2010.	**x**	**x**	
10	55333	**Contra Costa Generating Station, LLC's Response to the Oakley Generating Station Project Data Request Set 1 (#1-43)**; dated February, 2010, and docketed on February 11, 2010.	**x**	**x**	
11	55826	**Contra Costa Generating Station, LLC's Response to CEC Staff Data Requests #44-67**; dated March, 2010, and docketed on March 9, 2010.	**x**	**x**	
12	56162	**Contra Costa Generating Station, LLC's Supplemental Filing for Air Quality & Public Health Revised April 2010**; dated April, 2010, and docketed on April 7, 2010.	**x**	**x**	
13	56163	**Contra Costa Generating Station, LLC's Phase 1 Environmental Site Assessment – Transmission Line Corridor**; dated March, 2010, and docketed on April 7, 2010.	**x**	**x**	
14	56480	**Contra Costa Generating Station, LLC's DuPont Property Due Diligence Summary Report (Purchase and Sale Agreement between Contra Costa Generating Station, LLC (CCGS) and Pacific Gas and Electric Company (PG&E)**; dated January 15, 2010, and docketed on April 29, 2010.	**x**	**x**	
15	56640	**Contra Costa Generating Station, LLC's Response to CEC Staff Data Requests #68-73**; dated May, 2010, and docketed on May 12, 2010.	**x**	**x**	
16	56772	**Contra Costa Generating Station, LLC's Responses to Bay Area Air Quality Management District (BAAQMD) Questions Received on April 15, 2010**; dated May 20, 2010, and docketed on May 21, 2010.	**x**	**x**	
17	56917	**Contra Costa Generating Station, LLC's Response to CEC Workshop Query #7**; dated August 7, 2009, and docketed on May 27, 2010.	**x**	**x**	

18	57035	**Contra Costa Generating Station, LLC's Record of May 20, 2010 Conversation between CH2M Hill and California Department of Fish and Game regarding Wetland E Management Plan**; dated May 20, 2010, and docketed on June 7, 2010.	**x**	**x**	
19	57230	**Contra Costa Generating Station, LLC's Wetland E Management Plan Updated June 2010**; dated June 18, 2010, and docketed on June 18, 2010.	**x**	**x**	
20	57295	**Email from California Department of Fish and Game, dated June 21, 2010, regarding Wetland E Management Plan**; dated June 21, 2010, and docketed on June 21, 2010.	**x**	**x**	
21	57377	**City of Oakley Review and Approval of the Landscape Plan and Screen Tree Plan for the Oakley Generating Station Project**; dated June 23, 2010, and docketed on June 29, 2010.	**x**	**x**	
22	57445	**Contra Costa Generating Station, LLC's Response to CEC Staff Workshop Queries # 3-17**; dated July, 2010, and docketed on July 2, 2010.	**x**	**x**	
23	57688	**Contra Costa Generating Station, LLC's Supplemental Information Item (SII) #1 – Topographic Survey Map, Oakley Generating Station**; dated March 4, 2009, and docketed on July 21, 2010.	**x**	**x**	
24	57689	**Contra Costa Generating Station, LLC's Supplemental Information Item (SII) #2 – Oakley Generating Station Landscape Plan, Revised 6-24-10**; dated June 24, 2010, and docketed on July 21, 2010.	**x**	**x**	
25	57804	**Oakley Generating Station Air Quality Modeling Files, Supplement to Previous Submittals with New/Revised Analysis (Response to Workshop Queries 3-4)**; dated April, 2010, and docketed on July 22, 2010.	**x**	**x**	
26	57993	**Contra Costa Generating Station, LLC's Air Quality Modeling Files**; dated August, 2011 and docketed August 5, 2010.	**x**	**x**	
27	58070	**Contra Costa Generating Station, LLC's Internal E-mail regarding an Updated Landscape Plan**; dated July 9, 2010, and docketed on August 17, 2010.	**x**	**x**	

28	58115	**Contra Costa Generating Station, LLC's Transition Cluster Phase II Interconnection Study Report**; dated July 30, 2010, and docketed on August 17, 2010.	**x**	**x**	
29	58189	**Letter from East Contra Costa County Habitat Conservancy to California Energy Commission (CEC) regarding HCP/NCCP**; dated August 26, 2010, and docketed on August 26, 2010.	**x**	**x**	
30	58282	**Contra Costa Generating Station, LLC's Technical Memorandum – Oakley Generating Station Off-site Consequence Analysis**; dated August 25, 2010, and docketed on September 3, 2010.	**x**	**x**	
31	58523	**Contra Costa Generating Station, LLC's Draft HCC HCP-NCCP Planning Survey Report**; dated September 17, 2010, and docketed on September 17, 2010.	**x**	**x**	
32	58574	**Contra Costa Generating Station, LLC's Supplemental Information Item #3: Sanitary Sewer Force Main**; dated September, 2010, and docketed September 21, 2010.	**x**	**x**	
33	58675	**Contra Costa Generating Station, LLC's Supplemental Information Item #4: Revised Stormwater Drainage Design**; dated September, 2010, and docketed on September 28, 2010.	**x**	**x**	
34	58810	**City of Oakley Letter to Radback Energy enclosing Oakley Generating Station Cooperation and Community Benefits Agreement**; dated April 7, 2010, and docketed on October 20, 2010.	**x**	**x**	
35	58819	**Contra Costa Generating Station, LLC's Cumulative Air Quality Impact Analysis (Supplemental Filing in Response to California Energy Commission Staff Data Request #23)**; dated October 2010, and docketed on October 20, 2010.	**x**	**x**	
36	58957	**Contra Costa Generating Station, LLC's Oakley Generating Station Mitigation Strategy**; dated November 3, 2010, and docketed on November 3, 2010.	**x**	**x**	
37	58963	**Contra Costa Generating Station, LLC's Bay Area Air Quality Management District (BAAQMD) Application 20798, Preliminary Determination of Compliance**; dated October, 2010, and docketed on November 4, 2010.	**x**	**x**	

38	58968	**Contra Costa Generating Station, LLC's Transition Cluster Phase II Interconnection Study Report**; dated September 22, 2010, and docketed on November 5, 2010.	**x**	**x**	
39	58972	**Contra Costa Generating Station, LLC's Errata Sheet for Bay Area Air Quality Management District (BAAQMD) Application 20798, Preliminary Determination of Compliance**; dated November 4, 2010, and docketed on November 5, 2010.	**x**	**x**	
40	58984	**Contra Costa Generating Station, LLC's Email from CH2MHill to the CEC Regarding Annual Solid Waste Generated During Operation**; dated November 9, 2010, and docketed on November 9, 2010.	**x**	**x**	
41	59042	**Contra Costa Generating Station, LLC's Construction, Drainage, Erosion, and Sediment Control/Stormwater Pollution Prevention Plan**; dated November 2010, and docketed on November 19, 2010.	**x**	**x**	
42	59048	**Contra Costa Generating Station, LLC's Supplemental Information Item #5: Revised ECCCHC City/County of Oakley/Contra Costa County Application Form and Planning Survey Report**; dated November 22, 2010, and docketed on November 22, 2010.	**x**	**x**	
43	59312	**Contra Costa Generating Station, LLC's Appendix A – Revision 2 – Transition Cluster Phase II Interconnection Study Report**; dated November 18, 2010, and docketed December 20, 2010.	**x**	**x**	
44	59418	**Contra Costa Generating Station, LLC's Assessor's Parcel Map for the Oakley Generating Station Site APN 037020019 and Contra Costa County Mapping Information Center view of APN 037020019**; dated January 3, 2011, and docketed on January 3, 2011.	**x**	**x**	
45	59531	**Bay Area Air Quality Management District (BAAQMD) Final Determination of Compliance**; dated January 2011, and docketed on January 24, 2011.	**x**	**x**	
46	59571	**Contra Costa Generating Station, LLC's Initial Comments on the Preliminary Staff Assessment**; dated January 28, 2011, and docketed on January 28, 2011.	**x**	**x**	

47	59577	**Contra Costa Generating Station, LLC's Recorded Lot Line Adjustment**; dated May 12/13, 2009, Recorded on October 5, 2009, and docketed on January 27, 2011.	**x**	**x**	
48	59608	**City of Oakley Response to Preliminary Staff Assessment Parts A and B, and Department of Fish and Game's Conservation Easement**; dated February 2, 2011, and docketed on February 3, 2011.	**x**	**x**	
49	59671	**Letter from First American Trust to the California Energy Commission (CEC) regarding Bay Area Air Quality Management District (BAAQMD) Emission Reduction Credits**; dated January 31, 2011, and docketed on February 11, 2011.	**x**	**x**	
50	59683	**Contra Costa Generating Station, LLC's Final Comments on the Preliminary Staff Assessment**; dated February 11, 2011, and docketed on February 11, 2011.	**x**	**x**	
51	59719	**Contra Costa Generating Station, LLC's Transmission Line Reconductoring Analysis (Response to Data Request 74)**; dated February 2011, and docketed on February 17, 2011.	**x**	**x**	
52	59735	**Email from City of Oakley to California Energy Commission (CEC) regarding Traffic and Transportations Clarifications**; dated February 16, 2011, and docketed on February 22, 2011.	**x**	**x**	
53	59748	**Contra Costa Generating Station, LLC's Technical Memorandum: Arborist Survey of the Oakley Generating Station Project and Transmission Line Upgrade Route**; dated February 22, 2011, and docketed on February 22, 2011.	**x**	**x**	
54	59794	**Contra Costa Generating Station, LLC's Supplemental Noise Information**; dated February 22, 2011, and docketed on February 22, 2011.	**x**	**x**	
55	59883	**Contra Costa Generating Station, LLC's Opening Testimony;** dated March 4, 2011, and docketed on March 4, 2011.	**x**	**x**	
56	59985	**Contra Costa Generating Station, LLC's Rebuttal Testimony**	**x**	**x**	
57	60031	**Stipulation By and Among Contra Costa Generating Station, LLC, Robert Sarvey, and Energy Commission Staff regarding Conditions of Certification**	**x**	**x**	

58	60043	**Letter from City of Oakley regarding Energy Commission Final Staff Assessment** dated March 14, 2011	**x**	**x**	
59	60033	**Contra Costa Generating Station, LLC's Proposed Revised Language for Condition of Certification SOIL&WATER-6**	**x**	**x**	
60	60041	**Supplemental Testimony of Harvey Haines relating to Pipeline Safety**	**x**	**x**	
61	60149	**Staff Report and Official Record of the East Contra Costa County Conservancy**	**x**	**x**	
62	60147	**Stipulation between Staff and Applicant re Soil and Water Resources and Biological Resources**	**x**	**x**	
Energy Commission Staff's Exhibits					
300		**CEC Staff's** Final Staff Assessment	**x**	**x**	
301	59531	**Bay Area Air Quality Management District** Final Determination of Compliance	**x**	**x**	
302	59945	**Supplemental Staff Assessment (Transmission System Engineering Appendix A)**	**x**	**x**	
303	60001	**CEC Staff's Rebuttal Testimony**	**x**	**x**	
304	60041	**Testimony of Geoff Lesh and Rick Tyler on Pipeline Safety**	**x**	**x**	
Intervenor Robert Sarvey's Exhibits					
400	59969	**Alternatives Testimony (Robert Sarvey) and Attachment**	**x**	**x**	
401		**Environmental Justice Testimony (Robert Sarvey)**	**x**	**x**	
402		**Biology Testimony (Robert Weiss)**	**x**	**x**	
403	59970	**WITHDRAWN - Air Quality Testimony (Robert Sarvey)**	**x**		**x**
404		**WITHDRAWN - Worker Safety and Fire Protection Testimony (Robert Sarvey)**	**x**		**x**
405		**Socioeconomic Testimony (Robert Simpson)**	**N/A**	**N/A**	**N/A**
406	59967	**Fine Particulate Data and Analysis Modeling dated October 1, 2009**	**x**	**x**	
407		**Rebuttal Testimony on Climate Change**	**x**	**x**	
408	60115	**Testimony of Robert Sarvey on Pipeline Safety**	**x**	**x**	
409		**WITHDRAWN - PG&E Gas Transmission Pipeline Maps**	**x**		**x**

410	60158	**Attachment B to PG&E Integrity Management Program**	**x**	**x**	
411	60160	**PG&E Transmission Facilities Risk Management Report**	**x**	**x**	
412	60171	**Report of PG&E on Records and Maximum Allowable Operating Pressure Validation**	**x**	**x**	
413	60161	**Gas Integrity Management Inspection Manual**	**x**	**x**	
414	60159	**Pipeline Testimony of Robert Sarvey – Show Cause Order**	**x**	**x**	
415	60120	**WITHDRAWN - Comments of Lauritzen Yacht Harbor and Driftwood Marina**	**x**		**x**

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE *OAKLEY GENERATING STATION*

Docket No. 09-AFC-4
PROOF OF SERVICE
(Revised 4/5/2011)

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*indicates change

DECLARATION OF SERVICE

I, _____, declare that on _____, 2011, I served and filed copies of the attached _____, dated _____, 2011. The original document filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/oakley/index.html].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

____ sent electronically to all email addresses on the Proof of Service list;

____ by personal delivery;

____ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

____ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-4
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

_____