COMMISSION DECISION

APPLICATION FOR CERTIFICATION for the

DELTA ENERGY CENTER

CALPINE CORPORATION AND BECHTEL ENTERPRISES, INC.

Docket No 98-AFC-3

FEBRUARY 2000

CALIFORNIA ENERGY COMMISSION

Gray Davis, ***Governor***

P800-00-001

CALIFORNIA ENERGY COMMISSION

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INTRODUCTION

A. Summary of the Proposed Decision

This Decision contains our rationale for determining that the Delta Energy Center (DEC) complies with all applicable laws, ordinances, regulations, and standards, and may therefore be licensed. It is based exclusively upon the record established during these certification proceedings and summarized in this document. We have independently evaluated this evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the DEC is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

DEC, as proposed by Calpine Corporation and Bechtel Enterprises, Inc. (Applicant), will be located in Contra Costa County in the eastern industrialized portion of the City of Pittsburg. The project is a combined cycle 880 megawatt (MW) natural gas-fired power plant sited on a 20-acre parcel owned by Dow Chemical. It is designed to supply the adjacent Dow Chemical facility with process steam and about 20 MW electricity. Associated facilities include a new 3.3-mile, 230 kilovolt (kV) electric overhead/underground transmission line that will interconnect to the existing PG&E substation near the Pittsburg Power Plant; a new 5.2-mile natural gas fuel supply line that connects with PG&E s Line 400 in Antioch; and wastewater supply and discharge pipelines that connect to the adjacent Delta Diablo Sanitation District. A 0.8-mile 13.8 kV line will supply electricity to Dow.

DEC is the fourth merchant power plant to be licensed by the Energy Commission. Its electrical output will be sold into the California Power Exchange, as well as to wholesale power consumers pursuant to bilateral sales

[1] All references to the Reporter s Transcript appear as date RT page. The dates refer to 1999 unless otherwise noted.

agreements. Project construction is expected to commence later this year; capital costs are estimated at between $350-$450 million. The project will provide 575 construction jobs at peak employment, as well as 24 permanent operational jobs. Full-scale commercial operation is anticipated by mid-year 2002. The California Unions for Reliable Energy (CURE) has a project labor agreement with DEC to supply qualified workers from the local region for project construction, maintenance, and operation.

Extensive coordination occurred in the process with numerous local, state, and federal agencies. Applicant and Commission staff worked with the Cities of Pittsburg and Antioch, Delta Diablo Sanitation District, the California Independent System Operator (Cal ISO), the Bay Area Air Quality Management District (BAAQMD), California Air Resources Board (CARB), the United States Fish & Wildlife Service, the California Department of Fish and Game, the California Department of Health Services, the U.S. Environmental Protection Agency (EPA), National Marine Fisheries, U.S. Army Corp of Engineers, the Regional Water Quality Board, Pacific Gas and Electric (PG&E), California Unions for Reliable Energy, as well as Intervenors CAP-IT, Californians for Renewable Energy, Community Health First and interested residents of the community.

BAAQMD was responsible for coordinating input from the U.S. EPA and CARB, in consultation with Commission staff, in drafting its Final Determination of Compliance (FDOC) on the project s conformity with state and federal air quality standards. DEC has provided more than sufficient offsets, including local offsets, to comply with BAAQMD s requirements. Moreover, the project will use the best available control technology (BACT), identified by BAAQMD, to reduce emissions to levels of insignificance. The conditions imposed by BAAQMD are incorporated into this Decision.

Intervenors Californians for Renewable Energy (CRE) and Community Health First (CHF) were active Intervenors in this proceeding. Both Intervenors

expressed concern that project-related emissions would degrade air quality and cause detrimental health effects from toxic air contaminants. The Intervenors submitted copies of documents that were downloaded from the internet in their efforts to show that the substances emitted by the project were dangerous to public health. Although the Intervenors presented passionate arguments in support of their positions, the evidence of record clearly establishes that the project complies with all applicable federal, state, and local regulatory programs that are designed to protect the environment and public health.

Intervenor CAP-IT was concerned about the installation and operation of a particulate monitoring station in the Pittsburg-Antioch area. In the Commission s Decision on the Pittsburg District Energy Facility, the PDEF Applicant was directed to work with DEC and BAAQMD to purchase, install, and operate a new particular monitoring station in the project vicinity. Condition **AQ-78** is included in this Decision to require DEC to coordinate with the PDEF and BAAQMD to purchase, install, and operate the new particulate monitoring station. DEC will also provide funding to retrofit the existing Pittsburg air monitoring station to collect data on toxic air contaminants.

The project s heat recovery steam generator (HRSG) stacks (144 feet tall) and its auxiliary boiler stacks (115 feet tall) exceed the City of Pittsburg s Zoning Ordinance height limitation (95 feet tall). The Pittsburg City Council adopted a Resolution stating that the city would have granted a variance to DEC is the city were the permitting agency. The Commission has relied on the city s Resolution to find that DEC is eligible for the variance, and therefore, would conform with local land use requirements. We have added Condition **LAND-8** to ensure that DEC complies with the variance as described in the Resolution.

DEC is located within the Los Medanos 3 Redevelopment District Area (RDA), which will collect approximately $3.5-$4.5 million per year in property taxes from DEC; these revenues will be shared by Contra Costa County (55 percent) and

the City of Pittsburg (45 percent). The Contra Costa Fire Protection District will receive in excess of $1 million per year from these revenues during the life of the project, creating more than sufficient funding to purchase necessary firefighting equipment to respond to potential emergencies at the project site. Revenues that go to the city will be used for infrastructure improvements within the RDA.

B. Site Certification Process

The DEC and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Resources Code, // 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (Pub. Resources Code, // 25519 (c), 21000 et seq.). The Commission s process and associated documents are functionally equivalent to the preparation of the traditional Environmental Impact Report. (Pub. Resources Code, / 21080.5). The process is designed to complete the review within a specified time period; a license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough and timely review and analysis of all aspects of this proposed project. During this process, we conduct 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 more formal level as an Intervenor with the same legal rights and duties as the project developers. Public participation is encouraged at every stage of the process.

The process begins when an Applicant submits the Application for Certification (AFC). Commission staff reviews the data submitted as part of this AFC, and

recommends to the Commission whether the AFC contains adequate information to begin the review. Once the Commission determines that an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the licensing process. This process includes public conferences and evidentiary hearings, as well as providing a recommendation (the Presiding Member s Proposed Decision) to the full Commission concerning a project's conformity with applicable laws, ordinances, regulations, and statutes.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining such further technical information as necessary. During this time, the Commission staff sponsors numerous public workshops at which Intervenors, agency representatives, and members of the public meet with Staff and Applicant to discuss, clarify, and negotiate pertinent issues. Staff then publicizes its initial technical evaluation of a project in a document called the "Staff Assessment".

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the various participants. Information gleaned from this event forms the basis for a Hearing Order that announces and schedules formal evidentiary hearings. At these hearings, all entities that have become formal parties are able to present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may present comments at these hearings. Evidence adduced during these hearings provides the basis for the Committee s analysis and recommendation to the full Commission.

The Committee s analysis and recommendation appear in the Presiding Member's Proposed Decision (PMPD), which is available for a public review period of at least 30 days. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may then elect to publish a revised version. If so, this Revised PMPD triggers an additional

15 day 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, the 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 and with equal legal status. An "ex parte" rule prohibits parties 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 inform members of the public concerning the certification proceedings, and to assist those interested in participating.

C. Procedural History

Public Resources Code, sections 25500 et seq. and Commission regulations (20 Cal. Code of Regs.,／1701, et seq.) mandate a public process and specify the occurrence of certain necessary events. The key procedural elements that occurred in the present case are summarized below.

On September 17, 1998, the joint venture partnership of Calpine Corporation and Bechtel Enterprises, Inc., filed a "Petition for Jurisdictional Determination" under Public Resources Code section 25540.6. This Petition asked the Commission to exempt DEC from the Notice of Intention (NOI) requirements of Public Resources Code section 25502. After due consideration of the matter the Commission determined, on December 2, 1998, that the proposed power plant project was the "result of competitive solicitation or negotiation" for the sale of its power and thus, qualified for an exemption from the NOI under Public Resources Code section 25540.6 (a)(1).

On December 18, 1998, Applicant filed its Application for Certification (AFC) seeking approval from the Commission to construct and operate the 880-

megawatt facility. On February 17, 1999, the full Commission accepted the AFC as data adequate in order to commence the review process.

The Committee scheduled its initial event, an "Informational Hearing and Site Visit", by notice dated February 22, 1999. This notice was sent to all entities who were known to be interested in the proposed project, including the owners of property adjacent to, or in the near vicinity of, DEC. The notice was also published in local general circulation newspapers.

The Committee conducted the Informational Hearing in Pittsburg on Monday, March 22, 1999. At this event, the Committee and other participants discussed the proposed project, described the Energy Commission's review process, and identified the opportunities for public participation. Commission staff then scheduled and held the first in a series of informal post-acceptance public workshops in the local area to further discuss project details.

These Staff-sponsored workshops were scheduled in Pittsburg on April 15 and 27, 1999; May 18, 1999; and August 10, 11, 18, and 19, 1999. A public workshop was also held in Pittsburg on September 8, 1999, specifically to discuss the Air District s Preliminary Determination of Compliance (PDOC) and public health issues. On November 8, 1999, Staff conducted another public workshop in Pittsburg to discuss and answer questions on the Air District s Final Determination of Compliance (FDOC).

The Committee issued its required Scheduling Order on March 30, 1999. Pursuant to this Order, and following additional case development, Commission staff released its Preliminary Staff Assessment (PSA) on July 23, 1999. Prior to the release of the PSA, the Committee conducted a Status Conference on July 14, 1999, to determine whether the 12-month schedule should be modified. Thereafter, on August 23, 1999, the Committee conducted a Prehearing

Conference in Pittsburg to assess the status of the case and determine whether substantive issues required adjudication.

After considering the comments of all parties, the Committee subsequently scheduled the dates for issuance of the Final Staff Assessment on September 20, 1999, and the commencement of formal evidentiary hearings, which began on October 5. Evidentiary Hearings were also conducted in Pittsburg on October 13, 1999, and on November 3, and 18, 1999. The final hearing in Pittsburg on November 18, 1999, covered the topic areas of local concern: Air Quality, Public Health, and Socioeconomics.

The Committee also provided the parties with the option of filing briefs to discuss the evidence and/or present legal argument on the topics heard during the evidentiary hearings. Briefs were filed on October 18, October 25, November 12, November 24, December 3, and December 10, 1999.

The Committee, after thus establishing the evidentiary record, published its Presiding Member's Proposed Decision on December 23, 1999. The public comment period closed on January 26, 2000. The Committee conducted a conference on January 13, 2000 to discuss comments on the PMPD. The public comment period ended on January 26, 2000. None of the comments required substantive modifications to the PMPD.

Intervenors Community Health First (CHF) and Californians for Renewable Energy (CRE) submitted comments challenging the findings and conclusions regarding air quality, public health, environmental justice, biological resources, and alternatives. Both CHF and CRE argued that the methodologies and data used by the regulatory agencies were inaccurate and/or outdated. The record of evidence, however, does not support their assertions

Mr. Hawkins for CHF submitted two sets of comments on the PMPD and participated at the Committee Conference on January 13, 2000.[2] Mr. Hawkins disagreed with the conclusion that there would be no significant impacts to air quality and public health as the result of project-related activities. Mr. Hawkins argued that there are already several power plants in the Pittsburg vicinity and the addition of DEC would contribute significantly to air pollution in the area. As explained in the Decision, the evidence of record, including Mr. Hawkins submittals, does not support that assertion.

Mr. Hawkins claimed that the data used by Applicant and Staff and BAAQMD didn t account for the xenobiotic effects of project emissions. Mr. Hawkins provided information on Gulf War Syndrome and illnesses caused by exposure to a combination of toxic substances, which are similar to the illness suffered by Mr. Hawkins. As indicated in the Decision, the information submitted by Mr. Hawkins was not relevant to whether the project conforms with applicable federal, state, and local laws, ordinances, regulations, and statutes (LORS).

Rather than identifying specific items in the PMPD that could be corrected to reflect the evidence of record, Mr. Hawkins requested that the entire PMPD be rewritten based on his opposition to the project. In particular, Mr. Hawkins believes that gas-fired facilities should not be certified under any circumstances. Although he stated that renewable energy technologies should be employed, he did not present any evidence of feasible alternative technologies to the DEC project.

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[2] Mr. Hawkins filed a motion to reopen the record on the topics of air quality and public health that were heard on November 18, 1999. He asserted that his disability prevented him from fully participating at the November 18th hearing. The Committee denied the motion. CHF s comments on the PMPD included a request to reconsider the Committee s denial based on Mr. Hawkins allegation that the Committee did not comply with the Bagley-Keene Open Meeting Act (Govt. Code, section 11120 et seq.) in conducting the November 18th hearing. The Commission found no basis for this allegation since CHF representatives received timely notice of the November 18th hearing, Mr. Hawkins was present and participated at the hearing, and a duly authorized representative of CHF participated at the hearing on behalf of CHF after Mr. Hawkins left. The Commission denied CHF s request to reconsider the motion to reopen the record.

Mr. Boyd for CRE submitted extensive comments on the PMPD. His comments sought to deny project certification. Many of the changes he proposed, however, did not reflect the evidence but rather represented his interpretation of the evidence. For example, Mr. Boyd asserted that the evidence on air quality and public health was outdated and that current data from the new particulate monitoring station were withheld from the record. As the Decision states, the regulatory agencies, including BAAQMD, CARB, and the EPA, accepted the data used in the air quality and public health analyses and found that the project would comply with applicable LORS. Condition AQ-78 requires Applicant to provide data from the new air monitor for one year prior to and two years after commercial operation. The record contains no persuasive evidence to support Mr. Boyd s assertion that data were withheld.

Mr. Boyd s comments on environmental justice included several quotations from the EPA s guidance document and expressed his interpretation of those guidelines. As stated in the Decision, however, there is no dispositive legal ruling on whether the federal guidelines apply to a state agency such as the Commission. Nor is there legal precedent on interpretation of those guidelines. The guidance document specifically states that [c] ompliance with this guidance will not be justiciable in any proceeding for judicial review of agency action. [Final Guidance for Incorporating Environmental Justice Concerns in EPA s NEPA Compliance (April 1998), p. 2.] Moreover, the evidence clearly established that no significant adverse impacts to air quality and public health would occur to *any* population from project-related activities. Mr. Boyd s discussion regarding the impact zone for the environmental justice analysis was simply not relevant to the conclusion regarding significant impacts.

Mr. Boyd also commented on alternatives. As stated in the Decision, the record established that no alternatives analysis is required in this case due to the strong relationship of DEC with an existing industrial site. [Pub. Resources

Code, section 25540.6(b).] Nevertheless, the evidence on alternatives was examined in response to concerns from intervenors such as CRE. Mr. Boyd misconstrued the law regarding the Commission s notice of intention requirements and the status of the Commission s certified regulatory program pursuant to Public Resources Code, section 21080.5. [See also, SB 110 (Stats. 1999, Chap. 581).]

Intervenor Southern Energy requested additional language concerning project access to the PG&E switchyard at Southern Energy s Pittsburg Power Plant. A sentence was added in the Project Description section to reflect testimony on this issue.

On January 27, 2000, the Committee issued a Notice scheduling the February 9th Commission hearing on the PMPD. On February 2, 2000, the Committee issued a list of non-substantive Errata that were incorporated into the PMPD. On February 9, 2000, the full Commission conducted a public hearing on the PMPD and adopted this Decision granting a license to construct and operate the Delta Energy Center.

The entities that formally intervened and participated as parties in this process include: the California Unions for Reliable Energy (CURE); CAP-IT; the City of Antioch; Enron Corporation; Southern Energy Delta, LLC; Community Health First; the City of Pittsburg; and, Californians for Renewable Energy.

I. PROJECT DESCRIPTION

The Delta Energy Center (DEC or Applicant) is a limited liability corporation established by Calpine Corporation and Bechtel Enterprises to develop, construct, and operate an 880 megawatt (MW) natural gas-fired power plant at the Dow Chemical complex in the City of Pittsburg. (Ex. 1, p. 3.) DEC is a merchant plant that is conceived as a baseload facility to sell power in the competitive electricity marketplace through bilateral contracts and via the California Power Exchange. (*Ibid*.; Ex. 2,/2.2.2.)

DEC was developed in response to a solicitation conducted by Dow Chemical, to locate the project at the proposed site and to provide about 200,000 pounds per hour (lbs/hr) of process steam and up to 20 MW of electricity to the Dow facility. (Ex. 2, p. 2-11;10/5 RT 65-66; 86-88.)

Location

The project will be located in eastern Contra Costa County within the corporate boundaries of the City of Pittsburg adjacent to the City of Antioch border.[3] The site is bounded by the Delta Diablo Sanitation District (DDSD) facilities on the east, Dow Chemical on the north, Dowest Slough to the west, and the Pittsburg-Antioch Highway to the south. (Ex. 20, p. 362.)

The site occupies about 20 acres of undeveloped land within a 139-acre parcel owned by Dow. (Ex. 20, p. 11.) Applicant will also utilize a 10-acre construction laydown area located immediately south of the site. (*Ibid.*) The area is zoned General Industrial (IG), which includes the development of power plant facilities. (*Ibid.*) The project location is shown in **Project Description** Figure 1**,** replicated from Applicant s Figure 1.1-1. (Exhibit 22.)

[3] The site can be accessed from State Road 4, north on Loveridge Road to the Pittsburg-Antioch Highway, east on the highway to Arcy Lane, and then north on Arcy adjacent to the Delta Diablo Sanitation District facility. A 20-foot wide road leading from Arcy to the power plant will terminate at a controlled gate to the power plant area. (Ex. 2,/2.2.1.)

Plant Configuration

The power plant consists of three combustion turbine generator (CTG) trains, configured as a three-by-three-by-one combined cycle cogeneration facility. (Ex. 1, p. 59; 10/5 RT 36.) The facility will employ three 200-MW Westinghouse 501F combustion turbine generators equipped with dry low No_x combustors and steam injection power augmentation capability; three heat recovery steam generator (HRSG) units with duct burners; and a shared 300-MW steam turbine generator (STG); cooling towers; and associated support equipment. The three exhaust stacks are 144 feet high. (*Ibid*.) Two auxiliary boilers will provide process steam to Dow. The project will employ selective catalytic reduction (SCR) technology to control emissions resulting from the combustion of natural gas. (Ex. 2, / 2.2.2.) The plant layout is shown in **Project Description** Figure 2, replicated from Applicant s Figure 1.1-2. (Exhibit 22.)

Linear Facilities

A new 230 kV switchyard will be constructed on the westside of the site. The project will interconnect with the PG&E transmission system via a 3.3-mile overhead/underground 230 kV double circuit transmission line that exits the project switchyard and travels west to the PG&E switchyard at the Pittsburg Power Plant. (Ex. 20, p 11.) The transmission line and other linear facilities are shown in **Project Description** Figure 3, replicated from Applicant s Figure 2.1-1a. (Exhibit 22.)

The overhead line is routed through industrial properties, including Dow and USS-POSCO, along the Burlington Northern Santa Fe (BN&SF) Railroad utility easement for approximately 1.6 miles. (10/5 RT 40-41, 59.) The line transitions underground near the CEMCO industrial building on USS-POSCO property, approximately 1,400 feet east of Columbia Street. (10/5 RT 59; Ex. 20, p. 12.)

Project Description Figure 1

Source: Ex. 22

Project Description Figure 2

Source: Ex. 22

Project Description Figure 3

Source: Ex. 22

The 1.7-mile underground line travels through vacant land between East Santa Fe Avenue and the BN&SF Railroad and continues westward beneath the 8th Street median.[4] Zoning designations in this highly developed area are residential and commercial. (Ex. 20, p. 12.) The line continues west along the abandoned railroad right-of-way and enters unincorporated Contra Costa County at a point immediately west of the DDSD pumping station. The transmission line then turns north to the PG&E switchyard, which is located at the Pittsburg Power Plant owned by Southern Energy. Regarding impacts to the property owned by Southern Energy, Applicant s witness, Mr. Buchanan testified that Applicant is negotiating with the Southern Company regarding their site, all aspects, access, environmental, routing, and easement. (10/5 RT 60:20-24.) This area is zoned heavy industrial. (*Ibid.*)

The project also includes a 0.8 mile 13.8 kV overhead transmission line to provide electricity to the adjacent Dow Chemical facility and a 0.7-mile aboveground steam line to provide steam to Dow.[5] (10/5 RT 58; 68-70.)

DEC will construct a 5.2-mile gas pipeline to supply the project with natural gas. The pipeline will follow an existing easement within the BN&SF right-of-way owned by Dow, and connect with PG&E s backbone Line 400 near the Antioch terminal east of the site.[6] (10/5 RT 43-44.) The route will cross through the Dow wetlands area, which was created by Dow as a model wetlands preserve. (*Id.*, p. 45.)

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[4] Applicant will work with the City of Pittsburg to develop and design a linear park along the 8th Street corridor. (10/13 RT 27-28.) See discussion in the Transmission Line Safety and Nuisance section of this Decision.

[5] Calpine operates an existing power plant on Dow property that consists of three turbines, which have the capacity to generate up to 70 MW of electricity. Currently, this facility operates at an 80 percent capacity factor to provide steam and electricity to Dow. After DEC is operating, this capacity will be reduced by 40 to 50 percent of current production. The existing plant, however, will be retained to meet summer peak loads. (10/5 RT 55-57.)

[6] This location is off Wilbur Avenue, near the Contra Costa Power Plant in Antioch. (10/5 RT 43.)

To avoid environmental disturbance, DEC will use horizontal directional drilling (HDD) as an alternative to trenching.[7] (*Id.*, pp. 46-47.) This technique will send the pipe down in a sweeping arc underground to a depth of 100 feet, if necessary. It will exit at an area near the Antioch marina, completely avoiding the Dow wetlands. (*Ibid.*) DEC will employ conventional trenching for a short distance to the eastern end of the marina and then use HDD along the Antioch waterfront to avoid coastal brackish marsh areas and other infrastructure. (*Id.,* p. 47.) The gas pipeline will emerge at McElheny Road and will continue in conventional trenches along the railroad right-of-way to Line 400.[8] (Ex. 20, p. 14.)

Water Supply

Approximately 95 percent of the total water requirements for the project are for cooling water to condense steam in the steam turbine. (Ex. 2,/2.2.8.2.) DEC will use tertiary treated wastewater (effluent) from DDSD for its cooling towers. (10/5 RT 49.) The effluent will be treated to meet Title 22 water quality standards,[9] which allow the use of recyled water for cooling tower makeup. (Ex. 1, p. 4; 10/5 RT 49-50.) Water supply and discharge pipelines will run from the site for about 500 feet east to DDSD. (Ex. 20, p. 14.)

Water is also required for steam production, power augmentation, and inlet air cooling. Applicant will use raw water from the Contra Costa Water District Canal to supply these functions via an existing 20 inch pipeline owned by Dow, adjacent to the site. (10/5 RT 61.) The plant will consume about 150 gallons per minute of raw water, which will be treated onsite and demineralized for high purity uses. *(Id*., pp. 61-63.) In response to questions from the Committee regarding the amount of water required, Applicant s

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[7] Applicant s witness, Mr. Buchanan, testified that HDD is becoming the technology of choice for environmentally sensitive areas, and has been approved by various state agencies. (10/5 48-49.)

[8] See the Biological Resources section of this Decision for a discussion of the pipeline route.

[9] State standards established by the California Department of Health Services require the use of tertiary treated wastewater in power plant cooling towers to protect public health from cooling tower drift and other potential impacts. [Cal. Code of Regs., tit. 22,/60301.100 et seq. (proposed regulations); see, specifically,/60306.]

witness indicated that DEC s consumption of raw water is a relatively small quantity and would not impact the ability of the Water District to supply its other customers. (*Id.,* p. 64.) See **Soil & Water Resources** section of this Decision.

Service water dedicated to the fire protection system and other project needs will also be supplied by the Contra Costa Water District and stored in a 270,000-gallon fire/service water storage tank onsite. (Ex. 2,/2.2.8.4.2.)

Potable water for domestic uses at the project will be supplied by the City of Pittsburg. City water is derived from Contra Costa Canal water, and augmented with ground water. (Ex. 39, p. 7.)

Economics

Construction is scheduled to begin in early 2000 and be completed in early 2002. Commercial operation will commence in the second quarter of 2002. (Ex. 2,/2.2.16.) The peak workforce during construction is expected to reach 575 employees, with a construction payroll of $36 million. (Ex. 1, pp. 4-5; Ex. 20, p. 262.) During operation, DEC will employ 24 employees with an annual payroll of about $1.2 million. (Ex. 20, pp. 252, 262.) The annual operating budget is expected to be $2-$4 million, all of which will be spent locally. (*Id.*, p. 262.) The capital cost of the project cost is estimated at $350 to $450 million. (Ex. 2, p. 8.8-12.)

II. NEED CONFORMANCE

Prior to January 1, 2000, the Commission was required to find that a proposed project would conform with the 12-year forecast for electricity demand and the Integrated Assessment of Need as described in the Commission s most recently adopted Electricity Report.[10] The most recent Electricity Report is the *1996 Electricity Report* (***ER 96***) adopted on November 5, 1997.

The Application for Certification filed by Delta Energy Center (DEC) was accepted on February 17, 1999. Therefore, ***ER 96*** was applicable to this project. (10/5 RT 72.) The need conformance criteria established in ***ER 96*** are summarized as follows:

> during the period when ***ER 96*** is applicable, proposed power plants shall be found in conformance with the Integrated Assessment of Need (IAN) as long as the total number of megawatts permitted does not exceed 6,737. (***ER 96***, p. 72.)

The capacity of the 880-megawatt (MW) Delta Energy Center does not exceed the 6,737-MW limit established in ***ER 96***. (Ex. 1, p. 6.) The three power plant projects currently certified under ***ER 96*** have the capacity to generate up to 2,048 MW of electricity. (Sutter Power Project, Publication No. P800-99-010; Pittsburg District Energy Facility, Publication No. P800-99-013; and, La Paloma Generating Project, Publication No. P800-99-014.) Adding DEC s 880 MW to this 2,048 MW capacity falls well below the 6,737 MW limit. On April 28, 1999, the Commission adopted an Addendum to ***ER 96***, which eliminated the 6,737-MW limit for new power plants. (Commission Order No. 99-0428-12.)

[10] See, Public Resources Code section 25523(f) and sections cited therein. In September, 1999, the Legislature enacted Senate Bill 110, which eliminates the need conformance requirement as of January 1, 2000. (Stats. 1999, Chap. 581.)

FINDINGS AND CONCLUSIONS

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

1. The *1996 Electricity Report* (***ER 96***) was the Commission s most recently adopted Electricity Report.

2. The need conformance criteria established in ***ER 96*** were applicable to the Delta Energy Center prior to January 1, 2000.

3. The Delta Energy Center s 880 MW capacity did not exceed the 6,737 MW limit established in ***ER 96***.

4. The Addendum to ***ER 96***, adopted April 28, 1999, eliminated the 6,737 MW limit for new power plants.

5. Senate Bill 110 (Stats. 1999, Chap. 581), effective January 1, 2000, eliminates the requirement to perform a need conformance analysis.

The Commission concludes that the Delta Energy Center satisfied the need conformance criteria established in the *1996 Electricity Report* and conformed with applicable law relating to need conformance prior to January 1, 2000, as identified in the pertinent portions of APPENDIX A of this Decision.

III. PROJECT ALTERNATIVES

As required by the Warren-Alquist Act and the California Environmental Quality Act (CEQA), the Commission s alternatives analysis reviews a reasonable range of feasible alternative sites that would attain most of the basic project objectives but also substantially reduce or avoid the potentially significant adverse impacts of the proposed project [Pub. Resources Code, ⁄ 25540.6(b); Cal. Code Regs., tit. 20, ⁄ 1765 and tit. 14, ⁄ 15126.6(a).] The analysis also includes a no project alternative, and a review of alternative technologies. [Cal. Code of Regs., tit. 14, ⁄ 15126(e).]

SUMMARY OF EVIDENCE

DEC will produce 880 MW of electricity and as a cogenerator,[11] it will provide 200,000 pounds per hour (lbs/hr) of process saturated steam to the adjacent Dow Chemical facility. (Ex. 20, p. 361.) Cogenerators require a steam line connection that is no more than one-half mile from the steam host to prevent significant heat loss.[12] Staff determined, therefore, that potential alternative sites in this case must be located within one-half mile of the steam host to meet project objectives. (*Ibid.*)

1. Methodology

Staff presented an analysis of six alternative sites predicated on the following elements: the project objectives; the project description and potential adverse impacts; alternative electricity generation technologies; a feasibility assessment of the alternative sites; and whether the alternative sites would

[11] Although the DEC project does not meet the efficiency standards for a cogeneration project as defined by Section 25134 of the Public Resources Code, the industrial process of generating electricity and providing steam to an industrial steam host is generically known as cogeneration.

[12] Steam lines cannot be perfectly insulated to reduce heat losses. When the line is longer than one-half mile, the quality of steam degenerates and could affect power plant efficiency and economic viability. (Ex. 20, p. 361.)

eliminate, reduce, or cause any significant impacts. (Ex. 20, p. 361; 10/5 RT 91-92.)

2. Project Objectives and Site Selection Criteria

Applicant identified the following objectives and site selection criteria, which were considered by Staff in analyzing feasible alternatives. (Ex. 2,／ 5.3; Ex. 20, p. 362.) The project objectives are:

- To build and operate a reliable power plant with a steam and electricity connection to Dow Chemical.[13] (10/5 RT 56.)
- To employ economical and efficient technology with baseload and load following capacity to respond to the California electricity marketplace. (10/5 RT 88.)
- To develop a project that is compatible with local land management plans, including City General Plans and zoning designations.
- To ensure that potential environmental impacts associated with developing the site can be mitigated to a level of non-significance.

According to Applicant, the alternative site possibilities must be located in proximity to Dow Chemical; have at least 20 acres available plus a construction laydown area; be close to DDSD; be at least one mile from the nearest residential area; and, present a lower level of potential environmental impacts when compared with the proposed site. (10/5 RT 86.)

3. The Proposed Site

The proposed site is located on an existing 20-acre industrial parcel owned by Dow Chemical in the northeast corner of the City of Pittsburg, adjacent to the corporate boundary between the Cities of Pittsburg and Antioch. Access to the site is via Arcy Lane off Pittsburg-Antioch Highway. The site s northern boundary is the Burlington Northern and Santa Fe (BN&SF) Railway line, and the southern boundary is parallel to the Pittsburg-Antioch Highway. (Ex. 20, p. 362.)

[13] As the result of a solicitation by Dow Chemical in 1997-98, Applicant was selected to develop a baseload merchant power plant at the proposed site and to supply Dow with steam and electricity. (10/5 RT 86-88.)

Surrounding land uses include the Delta Diablo Sanitation District facilities to the east and southeast, Dow s petrochemical facility to the northwest, the GWF Unit 2 facility to the southwest, and unused parcels owned by Dow and USS-POSCO to the west. The site is zoned general industrial, which includes development of electric power plants. (Ex. 20, p. 362.)

The nearest residence is the Casa Medanos residential motel, located approximately 2,300 feet south of the project site in a commercially zoned area. (Ex. 20, p. 150.) The next closest residential area is approximately one mile from the site in Antioch. (Ex. 20, p 362.)

4. Linear Facilities

DEC will use reclaimed water from the Delta Diablo Sanitation District (DDSD), which is adjacent to the site. (10/5 RT 49-51.) The project s new 5.2-mile underground gas pipeline will connect to PG&E s Line 400 near the Antioch gas terminal. (10/5 RT 43-45.) The project s 230 kV transmission line will interconnect with the existing Pittsburg Power Plant switchyard located approximately 3.3 miles west of the proposed site. (10/5 RT 40-41, 57.) DEC will provide steam and electricity to Dow via an onsite steam line and a 13.8 kV transmission line. (Ex. 20, p. 363.)

5. Potential Impacts

In developing the alternatives analysis, Staff considered the environmental consequences of the project as discussed in the individual sections of this Decision. (10/5 RT 128-131.) The Conditions of Certification listed at the conclusion of each section include the mitigation measures that Applicant will implement to prevent significant adverse impacts to the environment and to public health and safety. (Ex. 20, p. 363.)

6. Discussion Of Project Alternatives

a. Generation Technology Alternatives[14]

Staff compared the proposed project with the principal electricity generation technologies that do not burn fossil fuels, i.e., geothermal, solar, hydroelectric, and wind. Each of these technologies would be attractive from an environmental perspective because of the absence or reduced level of air pollutant emissions. (Ex. 20, p. 364.)

Staff determined that there are no geothermal resources in the Pittsburg vicinity. Solar and hydroelectric resources in the San Francisco Bay Area region are insufficient for commercial scale electricity generation. (Ex. 20, p. 364.) The Montezuma Hills region to the north in Solano County has some wind generation activity. However, the intermittent nature of the wind resource and the 1-2 mile distance from the Hills to the project site across the Sacramento River and the New York Slough, do not meet project objectives for baseload operation and are too far from the steam host. (Even if these resources were closer, they could not produce requisite steam to meet project objectives.) Staff, therefore, concluded that there are no feasible technology alternatives to reliably serve a project that must be close to its industrial steam host.[15] (*Ibid*.; 10/5 RT 101.)

Staff also considered the possibility of a smaller sized cogeneration alternative that would seem to be more environmentally preferable, such as a 240 MW gas-fired combined cycle project, located at the DEC site. (10/5 RT 108.) According to Staff, the amount of criteria air pollutants emitted from a 240 MW plant would be less than those from the proposed 880 MW project; however,

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[14] Section 25305(c) of the Public Resources Code states that conservation, load management, or other demand-reducing measures reasonably expected to occur shall not be considered as alternatives to a proposed facility in the alternatives analysis.

[15] Applicant concurred that technologies other than a combined cycle gas-fired plant would not meet project objectives. (10/5 RT 88.)

emissions from either project would be mitigated by offsets. Likewise, for each topic of environmental concern addressed in the Final Staff Analysis (Exhibits 20, 39, 54, and 61), Staff found no unmitigated adverse environmental impacts as the result of the proposed 880 MW project. (10/5 RT 127.) Staff, therefore, believes that the smaller project alternative would not result in a greater reduction of potential adverse impacts. (Ex. 20, p. 364.)

b. Site Alternatives

Staff s testimony included a review of six alternative sites that would provide the necessary proximity to the steam host: four sites were identified by Applicant and two were included by Staff. (Ex. 20, p. 366.) See **Alternatives** Figure 1.

DEC ALTERNATIVE A

- Site Description: This 91-acre parcel, owned by Dow is east of the DDSD within the City of Antioch. Surrounding land uses include the DDSD to the west, light industrial and commercial businesses on the south and east, and a restaurant, and baseball fields to the southeast. A residence, located behind the restaurant, is within 500 feet of the site. The Antioch General Plan designation at this location is business park. (Ex. 20, p. 366.)
- Advantages: Staff found no advantages of Alternative Site A compared with the proposed DEC site. (Ex. 20, p. 366.)
- Disadvantages: Potential adverse impacts to biological resources would be likely at this site, which is bisected by a 15-acre freshwater marsh. This alternative site is much closer to the nearest residence than the proposed DEC site; and industrial development would conflict with the General Plan designation of business park. (Ex. 20, p. 366.)

DEC ALTERNATIVE B

- Site Description: This 178-acre site is owned by Dow Chemical and is located within the City of Antioch. Dow has designated 150 acres as the Dow Wetland Preserve, which consists of marsh, tidal shoreline, lagoons, and sand dunes. (Ex. 20, p. 366.)
- Advantages: Staff found no advantages of Alternative Site B compared with the proposed DEC site. (Ex. 20, p. 367.)

- Disadvantages: Development at Alternative Site B would conflict with Dow Chemical s efforts to maintain this area as a biological preserve. Potential significant impacts to biological resources would require extensive and prohibitively expensive mitigation and the likelihood of a complicated permitting process. (Ex. 20, p. 367.)

DEC ALTERNATIVE C

- Site Description: Alternative Site C is an undeveloped 172-acre parcel owned by USS-POSCO in the City of Pittsburg. The western boundary is a baseball field near Columbia Street and the southern boundary is the Pittsburg-Antioch Highway. USS-POSCO s buildings form the northern boundary and the eastern boundary is near Loveridge Road. The site contains undulating hills, with Great Valley Willow scrub and a small wetlands area. (Ex. 2 / 5.3.1.2.2.) Residential areas are located 2,000 feet from the northeastern boundary. The site is zoned as General Industrial, which allows power plant construction. (Ex. 20, p. 367.)
- Advantages: DEC Alternative C would result in somewhat fewer impacts to visual resources than the proposed site since development on Alternative C would not reduce or block a view corridor to the San Joaquin River. (Ex. 20, p. 367.)
- Disadvantages: This area requires soil remediation, with years of work before industrial site development is possible. (Ex. 20, p. 367.)

DEC ALTERNATIVE SITE D

- Site Description: Alternative Site D is a 48-acre parcel located south of the proposed site in the City of Pittsburg. The southern boundary is State Highway 4. This area is surrounded by residential uses, with a large residential neighborhood located south of Highway 4. (Ex. 20, p. 368.)
- Advantages: Staff found no advantages of Alternative Site D compared with the proposed DEC site. (Ex. 20, p. 368.)
- Disadvantages: Alternative Site D is much closer to residential areas than the proposed site. Industrial development would conflict with the Community Commercial zoning for the area. (Ex. 20, p. 368.)

DOW CHEMICAL WATERFRONT SITE

- Site Description: This alternative 10-acre site is located on the New York Slough waterfront at the northwestern edge of Dow Chemical s property. Surrounding land uses include Dow s production facilities,

and USS- POSCO s marine dock and truck loading/parking lot. The nearest residence is one mile away. (Ex. 20, p. 368.)

- Advantages: The site is very disturbed, with minimal biological resources. Thus, potential impacts to biological resources would be less than at the DEC proposed site. Potential noise impacts to residential areas would also be diminished because this alternative site is farther away from residences. (Ex. 20, p. 368.) However, Applicant will mitigate any potential impacts to biological resources and community noise standards to levels of insignificance at the proposed site, thereby eliminating any advantages of this alternative site. (Id., p. 363.)

- Disadvantages: This location does not meet the minimum size requirement of 20 acres and lacks a laydown area for construction. It is farther away from the DDSD. (Ex. 20, p. 368.)

PITTSBURG DISTRICT ENERGY FACILITY (PDEF) SITE

- Site Description: This 12-acre site is located on an industrial parcel owned by USS-POSCO about 0.8 mile west of the proposed site. The Commission has certified this site for development of PDEF and, thus, it is not available to DEC. (Commission Docket No. 98-AFC-1.)

NO PROJECT ALTERNATIVE

Staff considered the advantages and disadvantages of the no project alternative.

- Advantages: The project site would remain vacant. However, the site is zoned industrial, and it is reasonably likely that another industrial project would eventually be constructed there. (Ex. 20, p. 370.)

- Disadvantages: The energy efficiency benefits of a large industrial cogeneration project would not be realized. According to Applicant, the no project alternative would likely result in the continued production of electricity by older, less efficient power plants in the Bay Area that release higher volumes of air pollutants. (Ex. 2, ⁄ 5.1.1.) Staff s witness also testified that the no project alternative is not environmentally preferable because the proposed project will provide steam to a host that is currently being served by a less efficient generator. (10/5 RT 114-115.)

ALTERNATIVES Figure 1

Source: Ex. 20, p. 365

Staff concluded that none of the alternatives, including the no project alternative, was preferable to the proposed project since all the potential environmental impacts associated with the project will be mitigated to levels of insignificance in compliance with applicable LORS. (Ex. 20, p. 370.)

7. Intervenors Position

Intervenor Californians for Renewable Energy (CRE) disputed Staff s alternatives analysis, arguing that Staff should have considered renewable energy, a smaller project, or no project as the environmentally preferred alternative. (CRE 10/17 Brief on Alternatives; 10/5 RT 113-114.) Mr. Hawkins, on behalf of Intervenor Community Health First (CHF), joined CRE in asserting that renewable energy is the only alternative that would eliminate adverse impacts on air quality and public health. (CHF 10/18 Brief on Alternatives.) Both CRE and CHF argue that the Commission should not certify any gas-fired power plant because, they believe, gas-fired projects contribute to further degradation of air quality in California.[16] (CRE and CHF Briefs on Alternatives.)

CRE presented legal argument asserting that Staff s alternatives analysis violates CEQA because Staff focused too narrowly on Applicant s declared objectives and thereby eliminated other feasible alternatives that would more effectively prevent adverse environmental impacts. (CRE 11/2 Rebuttal Brief, p. 2.) At the evidentiary hearing, CRE s representative, Michael Boyd, questioned the definition of feasibility used by Staff, claiming that Staff s apparent emphasis on economic feasibility was inappropriate. (10/5 RT 101-102, 114-116.)

[16] The Intervenors referred in their briefs to various website locations that contain excerpts of publications and California maps from the U.S. Environmental Protection Agency (EPA) related to air quality and public health. In addition, the Intervenors relied on information about renewable energy available on the Commission s website to support their views that renewable energy is the most preferable alternative to the proposed project. (CRE and CHF Briefs on Alternatives.)

CRE contends that the Commission erred in exempting Applicant from the Notice of Intention (NOI) process,[17] which CRE believes is equivalent to the CEQA scoping process. (CRE Rebuttal Brief.) By eliminating the NOI process, CRE asserts that the public was denied the opportunity to meaningfully participate in the project s environmental review. (*Ibid*.) CRE asserts that the Commission s siting process is not certified by the Secretary of the Resources Agency as required by Section 21080.5 of the Public Resources Code. CRE relies on the arguments presented in the Petitioner s Brief in the matter of *Brad Foster v. Energy Resources Conservation Development Commission*, Case No. S-081009, which has been summarily denied by the California Supreme Court.

CRE also claims that Staff failed to consider environmental justice issues in the alternatives analysis because, CRE believes, harmful air emissions in the Pittsburg area unfairly impact low income and minority communities. (CRE Rebuttal Brief, p. 9.) CRE argues that the mitigation measures recommended by Staff and BAAQMD do not comply with EPA requirements. (*Ibid*.)

8. Staff s Position

Staff asserts that the alternatives analysis is consistent with applicable CEQA Guidelines. Section 15126.6 of the Guidelines[18] provides that the purpose of the alternatives analysis is to consider alternatives that achieve the basic objectives of the project while avoiding or substantially lessening the

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[17] Section 25540.6(a)(1) of the Public Resources Code provides that no NOI is required for natural gas-fired power plants that are the result of a competitive solicitation or negotiation. On December 2, 1998, the Commission granted DEC an exemption from the NOI process. See, CEC Publication No. P800-98-007 (Docket No. 98-SIT-5). The statute also exempts several other categories of power plant projects from the NOI process, including: solar, cogeneration, modification of an existing facility, a plant that is only technologically or economically feasible to site at or near the energy source, a plant with a generation capacity up to 100 MW, and demonstration projects. [Pub. Resources Code, ⁄ 25540.6(a).] Senate Bill 110, effective January 1, 2000, amended Section 25540.6(a) to provide an automatic NOI exemption for gas-fired projects. (Stats. 1999, Chap. 581.)

[18] Title 14, California Code of Regulations, section 15000 et seq., sections 15126.6(a), (c), and (f)(2).

significant impacts of the project. (10/18 Staff Brief on Alternatives, p. 2.) The rule of reason, derived from case law, directs the lead agency to set forth only those alternatives necessary to permit a reasoned choice. [*Ibid*., citing sections 15126.6(c) and (f)(1).] The lead agency is only obligated to examine those that attain most of the basic objectives of the project. [*Ibid*., citing section 15126.6(f).]

Staff contested Intervenors arguments that the alternatives analysis screened out alternatives for economic rather than environmental reasons; that the smaller generation project should have been given greater emphasis as environmentally preferable; and that renewable technologies received too little focus. (10/18 Staff Brief, p. 3.) Staff explained that alternative sites were screened for feasibility and site availability as defined by CEQA.[19]

Staff also relied on CEQA Guidelines in response to Intervenors assertions that the analysis did not account for cumulative impacts. Section 15130(a)(3) of the Guidelines provides that [a] project s contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. Staff contends that the offset package funded by Applicant is the fair share mitigation measure that fulfills the programmatic approach used by federal and state government to mitigate potential cumulative air quality impacts. (10/18 Staff Brief, p. 3.)

9. Applicant s Position

[19] The Guidelines state that alternatives should be screened for feasibility and eliminated from more focused consideration where feasibility is doubtful. [Cal. Code of Regs, tit. 14, // 15126.6(c) and (f)(1).] Feasibility factors include site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and whether the project proponent has access to the alternative site. [*Id.*, / 15126.6(f)(1).]

In its October 18th Post-Hearing Brief, Applicant argues that Intervenors misconstrued the meaning of the Supreme Court decision in *Citizens of Goleta Valley v. Board of Supervisors* [(1990) 532 Cal. 3d 553.] The court explained that the function of an alternatives analysis was not to identify and review alternative sites throughout the region which could physically accommodate [the project], regardless of whether the alternatives could feasibly be developed by the project proponent, or even necessarily approved by the lead agency. (*Id*., p. 570.) Instead, the lead agency must consider a reasonable range of alternatives which 1) offer substantial environmental advantages over the project proposal, and 2) may be feasibly accomplished in a successful manner considering the economic, environmental, social, and technological factors involved. (*Id*., p. 566.)

Applicant believes that Staff s review of alternative sites and technologies, which considered the project objectives, was reasonable and proper under CEQA. (10/18 Applicant Brief, p. 11.)

COMMISSION DISCUSSION

Section 25540.6(b) of the Public Resources Code does not require an alternative site analysis for a cogeneration project at an existing industrial site.[20] In this case, although the project does not meet the efficiency standards of Section 25134 to achieve cogeneration status under the Warren-Alquist Act, the evidence clearly establishes that DEC is conceived as a cogeneration plant since it will supply process steam and electricity to Dow. The Commission,

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[20] Section 25540.6(b) provides in pertinent part that [p]rojects exempted from the notice of intention requirement shall include, in the application for certification, a discussion of the applicant s site selection criteria, any alternative sites that the applicant considered for the project, and the reasons why the applicant chose the proposed site. That discussion shall not be required for cogeneration projects at existing industrial sites. The commission may also accept an application for a noncogeneration project at an existing industrial site without requiring a discussion of site alternatives if the commission finds that the project has a strong relationship to the existing industrial site and that it is therefore reasonable not to analyze alternative sites for the project. (emphasis added.)

therefore, finds a strong relationship between DEC and the existing industrial site as the result of the solicitation by Dow Chemical for this project. Accordingly, we believe that section 25540.6(b) is applicable to this case.

We have, nevertheless, reviewed the evidence on alternative sites and technologies to ensure that all potential concerns were considered. This examination is necessarily limited to those sites within approximately one-half mile of the DEC site because of the operating characteristics of the steam line. We view this technical limitation as critical in assessing alternative site feasibility.

The Commission is not persuaded by Intervenor CRE s argument that Staff focused on Applicant s economic interests rather than on environmental impacts in reviewing the feasibility of alternative technologies or alternative sites. Not only was no evidence presented to support this assertion, but the CEQA Guidelines instruct the lead agency to use the rule of reason in examining alternatives that achieve the project s basic objectives. [Cal. Code of Regs., tit. 14,⁄15126.6(f).] We find that Staff complied with CEQA requirements and performed a balanced analysis that considered all relevant factors.[21]

The evidentiary record indicates that the proposed alternative technologies do not meet project objectives and the proposed alternative sites are less advantageous than the project site. Since the project, as mitigated, will not create any significant impacts, none of the alternative sites in Pittsburg or Antioch could potentially reduce environmental impacts that do not exist.

The option of a smaller project, such as a 240 MW cogeneration facility at the proposed site, was considered because it could potentially result in reduced air emissions, although it would include similar onsite project components,

[21] Staff s witness, Ms. Allen, testified that she took an overall look at feasbility in terms of whether the alternatives would meet the project objectives. And [she] didn t see any feasible alternatives. (10/5 RT 109.)

and similar linear facility routes. Although Staff suggested the smaller facility would be more environmentally preferable, all of the potential adverse impacts associated with the proposed project will be mitigated to levels of insignificance just as they would be for a smaller project. Thus, there is no advantage to a smaller-sized project option.

While the no project alternative may temporarily avoid the project s potential impacts, the benefits of the project, which replaces older, inefficient generating facilities, would not be realized. Moreover, the industrially-zoned site is likely to be developed in any event, which would necessarily require a CEQA-based environmental impacts analysis and mitigation measures appropriate to the development of an industrial facility and similar to those required of DEC.[22]

While we are sympathetic to the Intervenors view that renewable technologies are potentially less harmful to the environment than gas-fired technology, the Commission is mandated to ensure the development of efficient generation sources that can meet the requirements of California s energy market. (See, discussion at 11/18 RT 388-393.) The Commission will continue to foster and encourage the development of renewable energy technologies but at the same time, the evidence demonstrates that large modern, state-of-the-art gas-fired power plants are the most efficient and reliable technologies that can provide power at the scale required in California at the present time. (See, sections on **Power Plant Efficiency** and **Power Plant Reliability**.)

Regarding potential cumulative environmental impacts, the record establishes that mitigation measures contained in the Conditions of Certification have

[22] Section 15126.6(e)(2) of the CEQA Guidelines provides a framework for analyzing the no project alternative. 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 a set of artificial assumptions that would preserve the existing physical environment. [Cal. Code of Regs., tit. 14, ⁄ 15126.6(e)(2)(B).] The lead agency should analyze the impacts of the no project alternative by projecting what would reasonably be expected to occur in the foreseeable future based on current plans and consistent with available infrastructure and community services. [*Id.*, 15126.6(e)(3)(C).]

factored in the potential cumulative impacts for each topic area in this Decision. The sections on **Socioeconomics**, **Air Quality**, and **Public Health** provide discussions of Intervenors concerns regarding Environmental Justice, Air Quality, and Public Health. Moreover, the regulatory regimen designed by the U.S. EPA and the California Air Resources Board (CARB) is intended, through offsets, to allow industrial development while protecting air quality. As explained in the **Air Quality** and **Public Health** sections, the project meets the applicable regulatory criteria.

Intervenor CRE cited the *Sutter* appeal that was pending before the California Supreme Court in arguing that the Commission s regulatory program to license power plants is not certified by the Secretary of the Resources Agency.[23] CRE raises the same issues that the Commission addressed and rejected in the Order Denying Petition for Reconsideration in the Application for Certification for the Sutter Power Plant Project [Order No. 99-0623-20; June 23, 1999 (Docket No. 97-AFC-2).] We will not reconsider those arguments here.

FINDINGS AND CONCLUSIONS

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

1. The proposed site is located on Dow Chemical property in a highly industrialized area of the City of Pittsburg.

[23] On December 1, 1999, the California Supreme Court summarily denied review of the appeal filed by Intervenor Brad Foster in the *Sutter* certification proceeding. [*Foster v. Energy Resources Conservation and Development Commission* (Cal. Supreme Ct. (S-081009) review den. Dec. 1, 1999.] On October 14, 1999, the California Court of Appeal denied review of an appeal that duplicated the one subsequently denied by the Supreme Court. [*Foster v. Energy Resources Conservation and Development Commission* (3rd Dist. No. C033265) review den. Oct. 14, 1999.] The Supreme Court s ruling on this matter is dispositive. SB 110 requires the Secretary of the Resources Agency to review the Commission s regulatory program for compliance with the CEQA criteria by January 1, 2001. [Stats. of 1999, Chap. 581, ⁄ 25541.5.] SB 110 does not invalidate the program certification as it existed on January 1, 2000. [*Id.*, ⁄ 25541.5(c).]

2. The proposed DEC project is a natural gas-fired 880 MW facility that will function as a cogenerator by supplying electricity and process steam to Dow Chemical, the steam host.

3. DEC has demonstrated a strong relationship to the existing industrial site as the result of the solicitation by Dow Chemical for this project.

4. An alternatives analysis is not required for cogenerators or for those projects that demonstrate a strong relationship to the industrial site; however, the Commission included the analysis in response to public comment.

5. Cogeneration projects are typically located within one-half mile of the steam host to prevent heat loss.

6. The proposed alternative sites were chosen to meet project objectives, including proximity to the steam host.

7. None of the proposed alternative sites would avoid or substantially lessen any potential direct, indirect, or cumulative significant impacts of the project.

8. No feasible technology alternatives such as geothermal, solar, hydroelectric, or wind resources are located near the steam host or capable of meeting project objectives.

9. A smaller 240 MW power plant would not avoid or substantially lessen project impacts because the potential environmental impacts of the proposed 880 MW project will be mitigated to the same levels of insignificance that would be required of the smaller alternative project.

10. The no project alternative would not avoid or substantially lessen any direct, indirect, or cumulative significant impacts of the project.

11. The alternatives analysis complies with the requirements of the Warren-Alquist Act and the California Environmental Quality Act.

12. All potential adverse environmental impacts and potential cumulative impacts related to the proposed project will be mitigated to levels of insignificance in conformity with all applicable laws, ordinances, regulations, and standards.

The Commission concludes, therefore, that none of the technological or site alternatives reviewed by Applicant and Staff, nor proposed by the Intervenors,

would avoid or substantially lessen significant project-related impacts since all potential adverse impacts will be mitigated to insignificant levels. Moreover, none of the proposed alternatives would more feasibly achieve project objectives than the project description and the project site as proposed by Applicant. No Conditions of Certification are required for this topic.

IV. 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 and Discussion of the Evidence

The evidence of 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 Delta Energy Center 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 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 is the "General Conditions". These General Conditions basically:

- 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;
- establish procedures for settling disputes and making post-certification changes;
- state the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed conditions; and

- establish requirements for facility closure.

The second general element of the Plan is the specific Conditions of Certification. These are found following the summary and discussion of each individual topic area in this Decision. The individual conditions contained the measures required to mitigate potentially adverse project impacts to insignificant levels. 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 read in conjunction with any additional requirements contained in the individual Conditions of Certification. Applicant has acknowledged the applicability of all Conditions imposed in this Decision.

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

1. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Delta Energy Center will be designed, constructed, operated, and closed in conformity with applicable law.

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

We therefore conclude that the compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code, section 25532. Furthermore, we adopt the following Compliance Plan as part of this Decision.

COMPLIANCE PLAN

GENERAL CONDITIONS OF CERTIFICATION

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

A CPM will oversee the compliance monitoring and shall be responsible for:

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

2. resolving complaints;

3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;

4. documenting and tracking compliance filings; and,

5. ensuring that the compliance files are maintained and accessible.

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

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, it should be understood that the approval would involve all appropriate staff and management.

The Commission has established a toll free 800 number for the public to use for notifying the Commission about power plant construction and operation related complaints or events of concern. The telephone number is **1-800-858-0784.**

Pre-Construction and Pre-Operation Compliance Meeting

The CPM may schedule pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings will be to assemble both the Commission s and the project owner s technical staff to review the status of all pre-construction or pre-operation requirements contained in the Commission s Conditions of Certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings shall ensure, to the extent possible, that Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence and to preclude any last minute, unforeseen issues from arising.

Commission Record

The Commission shall maintain as a public record in either the Compliance file or Docket file for the life of the project (or other period as required):

1) all documents demonstrating compliance with any legal requirements relating to 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 Commission; and,

4) all petitions for project or condition changes and the resulting staff or Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner and any successors in interest to ensure that the general compliance conditions and the Conditions of Certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner and any successors in interest must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the Conditions of Certification or the general compliance conditions may result in revocation of Commission certification, an administrative fine, or other action as appropriate.

Access

The CPM, designated staff, and delegated agencies or consultants, shall be guaranteed and granted 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.

Compliance Record

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

Commission staff and delegate agencies shall, upon request to the project owner, be given access to the files.

Compliance Verifications

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved condition(s) of certification by condition number and include a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with

a statement such as: This submittal is for information only and is not required by a specific condition of certification. When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

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

All submittals shall be addressed as follows:

Compliance Project Manager
Delta Energy Center Project (98-AFC-3C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Commission staff action by a specific date, they shall so state in their submittal and include a detailed explanation of the effects on the project if this date is not met.

Each condition of certification is followed by a means of verification. The verification describes the 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, in most cases without Commission approval. [See, Title 20, California Code of Regulations,／1770(d), for when Commission approval is required.]

Verification of compliance with the Conditions of Certification can be accomplished by:

1) reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific Conditions of Certification;

2) appropriate letters from delegate agencies verifying compliance;

3) Commission staff audit of project records; and/or

4) Commission staff inspection of mitigation and/or other evidence of mitigation.

Compliance Reporting

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

Compliance Matrix

A compliance matrix is to 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 compliance conditions in a spreadsheet format. The compliance matrix must identify:

1) the technical area,

2) the condition number,

3) a brief description of the verification action or submittal required by the condition,

4) the date the submittal is required (e.g., sixty (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, and

7) an indication of the compliance status for each condition (e.g., not started , in progress or completed date).

Completed or satisfied conditions do not need to be included in the compliance matrix after they have been identified as completed/satisfied in at least one monthly or annual compliance report.

Monthly Compliance Report

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

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

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

3) an initial, and thereafter updated compliance matrix which shows the status of all Conditions of Certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);

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

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

6) a cumulative listing of any approved changes to Conditions of Certification;

7) a listing of any filings with, or permits issued by, other governmental agencies during the month;

8) a projection of project compliance activities scheduled during the next two months;

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

10) any requests to dispose of items that are required to be maintained in the project owner s compliance file.

The first Monthly Compliance Report is due the month following the Commission business meeting date that the project was approved, unless the project owner notifies the CPM in writing that a delay is warranted. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The Permit to Operate is issued following the satisfactory completion of the required source test.

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

1) an updated compliance matrix which shows the status of all Conditions of Certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);

2) a summary of the current project operating status and an explanation of any significant changes to facility operations during the year (i.e. total hours of operation, scheduled and unscheduled maintenance and any major repairs);

3) documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the

transmittal letter, and should be submitted as attachments to the Annual Compliance Report;

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

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

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

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

8) a listing of the year s additions to the on-site compliance file, and

9) an evaluation of the on-site contingency plan for unexpected facility closure, including any suggestions necessary for bringing the plan up to date [see General Conditions for Facility Closure addressed later in this section].

Confidential Information

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

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code section 711.4, the project owner shall pay a filing fee in the amount of eight hundred and fifty dollars ($850). The payment instrument shall be provided to the Commission s Project Manager at the time of project certification and shall be made payable to the California Department of Fish and Game. The Commission s Project Manager will submit the payment to the Office of Planning and Research as payment to the Secretary of the Resources Agency at the time of filing of the Notice of Decision pursuant to Public Resources Code section 21080.5.

FACILITY CLOSURE

Introduction

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

which provide the flexibility to deal with the specific situation and project setting which will exist at the time of closure. LORS pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

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

Planned Closure

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

Unexpected Temporary Closure

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

Unexpected Permanent Closure

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

General Conditions for Facility Closure

Planned Closure

In order that a planned facility closure does not create adverse impacts, a closure process, that will provide 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 Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the 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 all facilities and equipment that will a) be immediately removed from the site after closure (e.g. hazardous materials); b) temporarily remain on the site after closure (e.g., until the item is sold or scrapped); and c) permanently remain on the site after closure. The plan must explain both why the item cannot be removed and why it does not present a risk of harm to the environment and the public health and safety to remain *insitus* for in indefinite period.

4. Address conformance of the plan with all-applicable laws, ordinances, regulations, standards, local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.

Workshops and/or hearings may be conducted as part of the Commission s approval procedure if there are significant issues associated with the proposed facility closure plan, or the desires of local officials or interested parties are inconsistent with the plan.

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

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

Unexpected Temporary Closure

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

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that sixty (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 facilities 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 recommend revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the 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 temporary 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.

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

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

If it is determined that a temporary closure is likely to be permanent, or for a duration of more than twelve months, a closure plan consistent with that for a planned closure shall be submitted to the CPM within 90 days of the determination. The CPM and project owner may agree to a period of time other than the 90 days.

Unexpected Permanent Closure

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

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less that sixty (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 facilities 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 recommend revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the 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, 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.

Furthermore, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the unlikely event of abandonment. The nature and extent of insurance coverage, and major equipment warranties must also be included in the on-site contingency plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unexpected permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., within twenty-four (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.

DELEGATE AGENCIES

To the extent permitted by law, the Commission may delegate authority for compliance verification and enforcement to various state and local agencies that have expertise in subject areas where specific requirements have been established as a condition of certification. If a delegate agency does not participate in this program, the Commission staff will establish an alternative method of verification and enforcement. Commission staff reserves the right to independently verify compliance.

In performing construction and operation monitoring of the project, the Commission staff acts as, and has the authority of, the Chief Building Official (CBO). The Commission staff retains this authority when delegating to a local CBO. Delegation of authority for compliance verification includes the authority for enforcing codes, the responsibility for code interpretation as necessary, and the authority to use discretion as necessary in implementing the various codes and standards.

Whenever an agency s responsibility for a particular area is transferred by law to another entity, all references to the original agency shall be interpreted to apply to the successor entity.

ENFORCEMENT

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

Moreover, to ensure compliance with the terms and Conditions of Certification and applicable laws, ordinances, regulations, and standards, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

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 Commission pursuant to Title 20, California Code of Regulations, section 1230 et seq., but in many instances

the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure are described below:

Informal Dispute Resolution Procedure

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

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et seq., but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and Conditions of Certification as approved by the Commission, although the agreed upon resolution may result in a project owner, or in some cases the Commission staff, proposing an amendment.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be referred to the full Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

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

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven (7) working days of the CPM s request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

Request for Informal Meeting

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

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

2) secure the attendance of appropriate Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;

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

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

Formal Dispute Resolution Procedure-Complaints and Investigations

If either the project owner, Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint or a request for an investigation with the Commission s Chief Counsel. Disputes may pertain to actions or decisions made by any party including the Commission s delegate agents. Requirements for filing a complaint or a request for investigation and a description of how they are processed are in Title 20, California Code of Regulations, section 1230 et seq. The formal process may be in lieu of or in addition to the informal process.

Within thirty (30) days after receipt of a written complaint or a request for investigation, the Chairperson or, if one is assigned, the Committee may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, STAFF CHANGES AND VERIFICATION CHANGES

The project owner must petition or request the Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; 3) transfer ownership or operational control of the facility.

The petition or request for a change should be submitted to the Commission s Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria under sections 1769 (see Attachment A after this section) and 1770 that determine which type of change process applies are explained below.

Amendment

A proposed change will be processed as an amendment requiring Commission approval if it involves a change to the requirement or protocol (and in some cases the verification) portion of a condition of certification, an ownership or operator change, or a potential significant environmental impact.

Insignificant Staff Change

The proposed change will be processed as an insignificant staff change, not requiring Commission approval, if it does not require changing the language in a condition of certification, does not have a potential significant environmental impact, and will not cause the project to violate laws, ordinances, regulations or standards.

Verification Change

The proposed change will be processed as a verification or insignificant change if it involves only the language in the verification portion of the condition of certification. This procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. In the event that verification language contains technical requirements, the proposed change must be processed as an amendment requiring Commission approval. (See, section 1770.)

KEY EVENT LIST

PROJECT _____ DATE ENTERED

DOCKET # _____ PROJECT MANAGER

EVENT DESCRIPTION	***DATE ASSIGNED***
Date of Certification	
Start of Construction	
Completion of Construction	
Start of Operation (1st Turbine Roll)	
Start of Rainy Season	
End of Rainy Season	
Start T/L Construction	
Complete T/L Construction	
Start Fuel Supply Line Construction	
Complete Fuel Supply Line Construction	
Start Rough Grading	
Complete Rough Grading	
Start of Water Supply Line Construction	
Complete Water Supply Line Construction	
Start Implementing Erosion Control Measures	
Complete Implementing Erosion Control Measures	

ATTACHMENT A
TITLE 20, CALIFORNIA CODE OF REGULATIONS
SECTION 1769

/1769. Post Certification Amendments and Changes.

(a) Project Modifications

1. After the final decision is effective under section 1720.4, the applicant shall file with the commission a petition for any modifications it proposes to the project design, operation, or performance requirements. The petition must contain the following information:

   (A) A complete description of the proposed modifications, including new language for any conditions that will be affected;

   (B) A discussion of the necessity for the proposed modifications;

   (C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time;

   (D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted;

   (E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts;

   (F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;

   (G) A discussion of how the modification affects the public;

   (H) A list of property owners potentially affected by the modification; and

   (I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.

2. Within thirty (30) days after the applicant files a petition pursuant to subsection (a)(1) of this section, the staff shall review the petition to determine the extent of the proposed modifications. Where staff determines that there is no possibility that the modifications may have a significant effect on the environment, and if the modifications will not result in a change or deletion of a condition adopted by the commission in the final decision or make changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards, no commission

approval is required and the staff shall file a statement that it has made such a determination with the commission docket and mail a copy of the statement to each commissioner and every person on the post-certification mailing list. 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 in this subsection.

3. If staff determines that a modification does not meet the criteria in subsection (a)(2), or if a person objects to a staff determination that a modification does meet the criteria in subsection (a)(2), 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. The commission shall issue an order approving, rejecting, or modifying the petition at the scheduled hearing, unless it decides to assign the matter for further hearing before the full commission or an assigned committee or hearing officer. The commission may approve such modifications only if it can make the following findings:

   (A) The findings specified in section 1755(c), and (d), if applicable;

   (B) That the project would remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code section 25525;

   (C) That the change will be beneficial to the public, applicant, or intervenors; and

   (D) That there has been a substantial change in circumstances since the Commission certification justifying the change or that the change is based on information that was not available to the parties prior to Commission certification.

4. The staff shall compile and periodically publish a list of petitions filed under this section and their status.

   (b) Change in Ownership or Operational Control

      (1) A petition to transfer ownership or operational control of a facility shall contain the following information:

   (A) A discussion of any significant changes in the operational relationship between the owner and operator;

   (B) A statement identifying the party responsible for compliance with the commission's Conditions of Certification; and

   (C) A statement verified by the new owner or operator in the same manner as provided in Section 1707 that the new owner or operator

understands the Conditions of Certification and agrees to comply with those conditions.

(2) The commission may approve changes in ownership or operational control after fourteen days notice.

NOTE: Authority cited: Public Resources Code sections 25213, 25218(e) and 25541.5, Public Resources Code sections 25523, 25532 and 25534

V. FACILITY and ENGINEERING ASSESSMENT

The broad Engineering Assessment conducted for the Delta Energy Center consists of elements affecting the facility design, as well as the efficiency and reliability of the proposed power plant. This assessment includes not only the power generating equipment, but also other project-related elements such as the associated linear facilities (transmission line, the natural gas supply pipeline, the recycled water supply pipeline, and the potable water line).

A. FACILITY DESIGN

Facility design covers several topics, including the civil, electrical, mechanical, and structural engineering elements related to project design, construction, and operation.

SUMMARY OF EVIDENCE

The Application for Certification described the preliminary facility design for the project.[24] Since the project was in the preliminary design stage, the analysis of record was limited to assessing whether the proposed design had been described with sufficient detail to provide reasonable assurance that the project would be constructed in conformity with all applicable laws. In addition, the analysis considered whether there would be any unique or unusual features of the project design that could adversely affect the environment, public health and safety, or the operational reliability of the project.

Staff proposed several Conditions of Certification that would create a design review and construction inspection process to ensure compliance with the applicable design standards and any special design requirements. (10/5 RT 145.) In particular, Staff confirmed that the 1998 California Building Code (CBC) or successor edition is the applicable design code for DEC. (Ex. 20, pp. 300, 301, 308.) Condition **GEN-1** incorporates this requirement.

[24] See, Ex. 2,// 2, 4, 6, 7, 9 and Appendix 9; Ex. 6, pp. 19-25; Ex. 18.

Staff reviewed the preliminary project design with respect to site preparation and development; major project structures, systems and equipment; mechanical systems; electrical systems; linear facilities such as the gas pipeline, water pipeline, and transmission routes; and geologic hazards. (Ex. 20, pp. 300-308.)

Staff identified the laws, ordinances, regulations, and standards (LORS) that are applicable to the construction and operation of DEC s natural gas pipeline. Staff agreed with Applicant that the pipeline would be designed to adhere to all applicable LORS. (Ex. 20, p. 301; 10/5 RT 155-156.) Further, the pipeline will be protected against external corrosion or rust, which could cause it to fail and release the gas.[25] (10/5 RT 152.) Conditions **GEN-1** and **MECH-1** ensure that pipeline construction will comply with the applicable federal and state LORS for safe installation and operation.

The power plant site and ancillary facility corridors are located in Seismic Zone 4, the highest level of potential strong ground shaking in California.[26] The principal geologic hazards at the site are seismically-induced ground shaking and liquefaction.[27] (Ex. 2,/8.5 et seq.; Appendix 9G; Ex. 28.)

Staff identified several project components that require dynamic analysis for seismic events to comply with Section 1631 and Tables 16L and 16M of the 1998 CBC. These include the combustion turbine generator pedestal and foundation, the steam turbine generator pedestal and foundation, the heat recovery steam generator structure and foundation, the exhaust stack and foundation, and the cooling towers. (Ex. 20, p. 303.) Condition **GEN-2** incorporates this list and

[25] The pipeline will be coated with a pipe coating system and a cathodic protection system. (Ex. 20, p. 301.)

[26] The 1998 CBC defines strong ground shaking to mean acceleration of soil, rock, and/or structures that have had or may have a ground acceleration of 0.05g or greater as a result of propagation of a seismic wave. (1998 CBC, Figure 16-2, Ex. 20, p. 300; Ex. 2, Appendix 9.)

[27] Prior to final foundation design, a geotechnical study will identify areas subject to liquefaction. (Ex. 28, p. 376.)

identifies several additional project components that may be subject to dynamic analysis.

To ensure that the components and equipment that require dynamic analysis will actually receive this treatment, Applicant will cooperate with Staff and the Chief Building Official (CBO) to obtain agreement on a list of such items before final design approval. Condition **STRUC-1** incorporates this requirement.

Applicant also found that the linear facility corridors may be subject to potentially significant seismically-induced ground shaking and liquefaction. (Ex. 2, / 8.15.1.4.6.) Mitigation measures incorporated in the Conditions of Certification will reduce geologic hazards to acceptable levels. (See, *inter alia*, Conditions **GEN-5**; **CIVIL-2**; and **MECH-1**.)

The Conditions of Certification require Applicant to obtain approval from the CBO and the Commission s Compliance Project Manager (CPM) for each element or stage of construction prior to design implementation. Engineers responsible for the design of the civil, structural, mechanical, and electrical portions of the project must be registered in California and must sign and stamp the design plans, calculations, and specifications that are presented to the CBO. (Ex. 20, p. 306.)

A decommissioning plan will be filed with the City of Pittsburg and with the CPM 12 months prior to the commencement of DEC s closure. (Ex. 20, p. 316.) Condition **GEN-9** ensures that decommissioning will be completed in an environmentally sound manner that protects public health and safety. (Ex. 20, p. 307.)

COMMISSION DISCUSSION

The laws, ordinances, regulations, and standards (LORS) applicable to project design and construction are identified in APPENDIX A of this Decision. The Conditions of Certification require Applicant to implement the mitigation

measures identified in the record to ensure compliance with the applicable LORS.

FINDINGS AND CONCLUSIONS

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

1. The proposed DEC project is currently in the preliminary design stage.
2. Review of the available information contained in the record establishes that the proposed facility can be designed and constructed to conform with the applicable laws, ordinances, regulations, and standards identified in the pertinent portions of APPENDIX A of this Decision.
3. The Conditions of Certification set forth below incorporate the mitigation measures identified in the record and are necessary to ensure that the project is designed and constructed in conformance with applicable law.

The Commission, therefore, concludes that implementation of the Conditions of Certification as set forth below will ensure that the DEC project is likely to be designed, constructed, and operated in conformance with applicable law relating to the civil, electrical, mechanical, and structural engineering elements of the project.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC)[28] and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval.

In the event that the design plans are submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC provisions identified herein shall be

[28] The Sections, Chapters, Appendices and Tables, unless otherwise stated, refer to the Sections, Chapters, Appendices, and Tables of the 1998 California Building Code (CBC).

replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met for facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, section 109 — Certificate of Occupancy.]

GEN-2 The project owner shall furnish to the Energy Commission CPM and to the CBO a schedule of facility design submittals, a Master Drawing List, and a Master Specifications List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment below). To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Major Structures

Combustion Turbine Generator (CTG) Pedestal and Foundation
Steam Turbine Generator (STG) Pedestal and Foundation
CTG Enclosure Structure
STG Enclosure Structure
Air Inlet Filtration with Evaporative Cooler Structure (as applicable)
Cooling Tower
Heat Recovery Steam Generator (HRSG) Structure and Foundation
Exhaust Stack and Foundation
Field-Fabricated Tanks and Foundations
Shop-Fabricated Tanks and Foundations
Condenser Support Structure and Foundations
Equipment Foundations (compressors, pumps, transformers)
Switchyard
Control/Administration Building
Pipe Rack Structures
Transformer-Dead End Structure
Main Transformer Foundations
Transmission Tower Structure and Foundations
Boiler Feed Pump Foundations
Electrical Control Building

Major Equipment

CTG
STG
Gas-Fired HRSG
Shop-Fabricated Pressure Vessels
STG Condenser
Main Step-up Transformers
Boiler Feed Pumps
Condensate Pumps
Switchgear
Cycle Waste Chemical Storage
Circulating Water Pump

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEN-3 The project owner shall make payments to the CBO for design review, plan check, and construction inspection, equivalent to the fees listed in the 1998 CBC, Chapter 1, section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees. If Contra Costa County or the City of Pittsburg have adjusted the CBC fees for design review, plan check and construction inspection, the project owner shall pay the adjusted fees.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fee has been paid.

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer, or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project. [Building Standards Administrative Code (Cal. Code of Regs., tit. 24,／4-209, Designation of Responsibilities).]

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

distinct unit. Separate assignment of general responsible charge may be made for each designated part.

Protocol: The RE shall:

1. Monitor construction progress to ensure compliance with LORS;

2. Ensure that construction of all the facilities conforms in every material respect to the applicable LORS, these Conditions of Certification, approved plans, and specifications;

3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the project owner or as required by conditions on the project;

4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and any other required documents;

5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the name, qualifications, and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

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

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a 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 who is fully competent and proficient in the design of power plant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736. Requires state registration to practice as a civil engineer or structural engineer in California.]

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

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all engineers assigned to the project. [1998 CBC, section 104.2, Powers and Duties of Building Official.]

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

Protocol: A: The civil engineer shall:

1. Design, or be responsible for design, stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities. At a minimum, these include: 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

2. Provide consultation to the RE during the construction phase of the project, and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

1. Review all the engineering geology reports and prepare final soils grading report;

2. Prepare the soils engineering reports required by the 1998 CBC, Appendix Chapter 33, section 3309.5 — Soils Engineering Report, and section 3309.6 — Engineering Geology Report;

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 1998 CBC, Appendix Chapter 33, section 3317, Grading Inspections;

4. Recommend field changes to the civil engineer and RE;

5. Review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement, or collapse when saturated under load; and

6. Prepare reports on foundation investigation to comply with the 1998 CBC, Chapter 18, section 1804, Foundation Investigations.

This engineer shall be authorized to halt earthwork and to require changes, if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations. [1998 CBC, section 104.2.4, Stop orders.]

Protocol C: The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications and calculations.

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

Protocol: E: The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17, section 1701, Special Inspections, section, 1701.5 Type of Work (requiring special inspection), and section 106.3.5, Inspection and Observation program.

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;

2. Observe the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM; and

4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable provisions of the applicable edition of the CBC.

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

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

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

GEN-7 The project owner shall keep the CBO informed regarding the status of engineering and construction. If any discrepancy in design and/or construction is discovered, the project owner shall document the discrepancy and recommend the corrective action required. The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 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.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The

marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings. [1998 CBC, section 108, Inspections.]

Verification: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans.

GEN-9 The project owner shall file a closure/decommissioning plan with the City of Pittsburg and the CPM for review and approval at least 12 months (or other mutually agreed to time) prior to commencing the closure activities. If the project is abandoned before construction is completed, the project owner shall return the site to its original condition.

Protocol: The closure plan shall include a discussion of the following:

1. The proposed closure/decommissioning activities for the project and all appurtenant facilities constructed as part of the project;

2. All applicable LORS, all local/regional plans, and a discussion of the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;

3. Activities necessary to restore the site if the SCPP decommissioning plan requires removal of all equipment and appurtenant facilities; and

4. Closure/decommissioning alternatives, other than complete restoration of the site.

Verification: At least 12 months prior to closure or decommissioning activities, the project owner shall file a copy of the closure/decommissioning plan with The City of Pittsburg and the CPM for review and approval. Prior to the submittal of the closure plan, a meeting shall be held between the project owner and the CPM for discussing the specific contents of the plan.

CIVIL-1 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and

4. Soils report as required by the 1998 CBC, Appendix Chapter 33, section 3309.5, Soils Engineering Report and section 3309.6, Engineering Geology Report.

Verification: At least 15 days prior to the start of site grading, the project owner shall submit the documents described above to the CBO for review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area. [1998 CBC, section 104.2.4, Stop orders.]

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

CIVIL-3 The project owner shall perform inspections in accordance with the 1998 CBC, Chapter 1, section 108, Inspections, Chapter 17, section 1701.6, Continuous and Periodic Special Inspection and Appendix Chapter 33, section 3317, Grading Inspection. All plant site-grading operations shall be subject to inspection by the CBO and the CPM.

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

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. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-built" plans for the erosion and sedimentation control facilities. [1998 CBC, section 109, Certificate of Occupancy.]

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the applicable designs, plans and drawings, and a list of those project structures, components and major equipment items that will undergo dynamic structural analysis. Designs, plans, and drawings shall be those for:

1. Major project structures;
2. Major foundations, equipment supports and anchorage;
3. Pile foundations to support major structures and equipment;
4. Large field fabricated tanks;
5. Turbine/generator pedestal; and
6. Switchyard structures.

The project owner shall:

1. Obtain agreement with the CBO and California Energy Commission staff on the list of those structures, components and major equipment items to undergo dynamic structural analysis;

2. Meet the pile design requirements of the 1998 CBC. Specifically, section 1807, General Requirements, section 1808, Specific Pile Requirements, and section 1809, Foundation Construction (in seismic zones 3 and 4);

3. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently

with the structure plans, calculations, and specifications, [1998 CBC, section 108.4, Approval Required];

4. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation, [1998 CBC, section 106.4.2, Retention of plans and section 106.3.2, Submittal documents.]; and

5. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer. [1998 CBC, section 106.3.4, Architect or Engineer of Record.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of construction, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the nonconforming submittal with a copy of the transmittal letter to the CPM.

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

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;

3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number [ref: AWS]); and,

5. Reports covering other structure activities requiring special inspections shall be in accordance with the 1998 CBC, Chapter 17, section 1701, Special Inspections, section 1701.5, Type of Work (requiring special inspection), section 1702, Structural Observation and section 1703, Nondestructive Testing.

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 to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1998 CBC, Chapter 1, section 106.3.2, Submittal documents, and section 106.3.3, Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

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

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in Chapter 3, Table 3-E of the 1998 CBC shall, at a minimum, be designed to comply with Occupancy Category 2 of the 1998 CBC. Chapter 16, Table 16—K of the 1998 CBC requires use of the following seismic design criteria: $I^{\circ}=^{\circ}1.25$, $I_p = 1.5$ and $I_w = 1.15$.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing the above specified quantities of highly toxic or explosive substances that would be hazardous to the safety of the general public if released, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO 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 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter equal to or less than two and one-half inches). The submittal shall also include the applicable Quality Assurance/Quality Control (QA/QC) procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction. [1998 CBC, section 106.3.2, Submittal documents, section 108.3, Inspection Requests.]

The responsible mechanical engineer shall submit a signed and stamped statement to the CBO when:

1. The proposed final design plans, specifications, and calculations conform with all of the piping requirements set forth in the Energy Commission s Decision; and

2. All of the other piping systems, except domestic water, refrigeration systems and small bore piping have been designed, fabricated, and installed in accordance with all applicable ordinances, regulations, laws and industry standards, including, as applicable:

    - American National Standards Institute (ANSI) B31.1 (Power Piping Code);
    - ANSI B31.2 (Fuel Gas Piping Code);
    - ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
    - ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
    - Specific City/County code.

The CBO may require the project owner to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation. [1998 CBC, section 104.2.2, Deputies.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the proposed final design plans, specifications, calculations, and quality control procedures for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Energy Commission s Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation. [1998 CBC, section 108.3 — Inspection Requests.]

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of the CBO plan check approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the applicable edition of the CBC. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans, specifications and calculations shall include approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS. [1998 CBC, section 108.7, Other Inspections; section 106.3.4, Architect or Engineer of Record.]

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

The project owner shall send copies of CBO comments and approvals to the CPM in the next Monthly Compliance Report. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-4 Prior to the start of each increment of plumbing construction, the project owner shall submit for CBO's approval the final design plans, specifications, calculations, and QA/QC procedures for all plumbing systems, potable water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the local agency. Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction. [1998 CBC, section 108.3, Inspection Requests, section 108.4, Approval Required.]

The project owner shall design, fabricate and install:

1. Plumbing, potable water, all drainage systems, and toilet rooms in accordance with Title 24, California Code of Regulations, Division 5, Part 5 and the California Plumbing Code (or other relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and

2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

The final plans, specifications and calculations shall clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. In addition, the responsible mechanical engineer shall stamp and sign all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission s Decision.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the next Monthly Compliance Report following completion of that increment of construction.

ELEC-1 For the 13.8 kV and lower systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. [1998 CBC, section 108.4, Approval Required, and section 108.3, Inspection Requests.]

The following activities shall be reported in the Monthly Compliance Report:

1. receipt or delay of major electrical equipment;
2. testing or energization of major electrical equipment; and
3. the number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

ELEC-2 The project owner shall submit to the CBO the required number of copies of items A and B for review and approval and one copy of item C [CBC 1998, section 106.3.2, Submittal documents.]

A. Final plant design plans to include:
   1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
   2. system grounding drawings;
   3. general arrangement or conduit drawings; and
   4. other plans as required by the CBO.

B. Final plant calculations to establish:
   1. short-circuit ratings of plant equipment;
   2. ampacity of feeder cables;
   3. voltage drop in feeder cables;
   4. system grounding requirements;
   5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;
   6. system grounding requirements;
   7. lighting energy calculations; and
   8. other reasonable calculations as customarily required by the CBO.

C. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission Decision.

At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical equipment installation, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations, for the items enumerated above, including a copy of the signed and stamped statement from the responsible electrical engineer certifying compliance with the applicable LORS. The project owner shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

B. POWER PLANT EFFICIENCY

In this section, the Commission assesses whether the project s consumption of non-renewable energy will result in significant adverse environmental impacts and if so, what feasible mitigation measures are available to minimize the impacts through increased efficiency of design and operation.

SUMMARY OF EVIDENCE

Under the California Environmental Quality Act (CEQA), a project causes significant environment impacts if it uses large amounts of fuel, water, or energy in a wasteful, inefficient, and unnecessary manner. [Cal. Code of Regs., tit. 14,／15126.4 (a)(1).] In accordance with CEQA Guidelines, Staff s analysis considered whether the project would result in: 1) adverse effects on local and regional energy supplies and energy resources; 2) depletion of energy supply capacity; 3) wasteful, inefficient, and unnecessary consumption of fuel or energy; or 4) noncompliance with existing energy standards. (*Id.*,／15000 et seq., Appendix F; Ex. 20, p. 335.)

1. Potential Adverse Effects on Energy Supplies and Resources

Power plants that fall within the Commission s jurisdiction consume large amounts of energy.[29] (Ex. 20, p. 336.) DEC will burn natural gas at a maximum rate exceeding 159 billion Btu per day. (Ex. 2,／2.2.7; Ex. 20, p. 336.) While this is a substantial rate of energy consumption, DEC will purchase gas on the open market, drawing from plentiful supplies in the Southwest and Canada, transmitted via PG&E s gas pipeline system. (Ex. 20, p. 336.) These sources can supply far more gas than required by DEC, thus causing no adverse impacts on energy supplies or resources.[30] (*Ibid.*)

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[29] See, Public Resources Code section 25500 et seq., which provides that the Commission has jurisdiction to certify projects that generate 50 MW or more.

[30] The Commission takes administrative notice of the natural gas supply and forecast data made available in a public hearing conducted by Commission s Fuels and Transportation Committee on November 22, 1999. The current demand forecast for natural gas for power generation in

2. Depletion of Energy Supply

The natural gas pipeline system in California is so large and well-established that there is no likelihood that DEC will require development of any new sources of energy. (Ex. 20 p. 337.)

3. Alternatives to Wasteful or Inefficient Energy Consumption

Applicant considered alternative generating technologies such as oil-burning, coal-burning, solar, wind, hydroelectric, biomass, geothermal and nuclear technologies. (Ex. 2,/5.5 et seq.) Given the project objectives, location, and air pollution control requirements, Staff agreed with Applicant that only natural gas-burning technologies are feasible. (Ex. 20, p. 338.)

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 to generate power. (Ex. 20, p. 337.) DEC will employ three Siemens-Westinghouse 501F gas turbines, each nominally rated at 272 MW with a peak load efficiency of 55.8 percent lower heating value (LHV). (Ex. 20, p. 338; 10/5 RT 36, 174.)

The project is configured as a compound-train combined cycle power plant. Electricity will be generated by the three gas turbines and a shared steam turbine that uses heat energy recuperated from the gas turbines exhaust. (Ex. 20, p. 337.) By recovering this heat, which would otherwise be lost in the exhaust stacks, the efficiency of any combined cycle power plant is significantly increased in comparison to that of either gas turbines or steam turbines operating alone. (*Ibid*.) The project objectives include generation of baseload or load following

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California is 1.7 billion cubic feet per day (cfd). Over the next 20 years, this demand is expected to double. Based on this figure, DEC will use 8.8 percent of the natural gas currently used for electric generation in California. In 20 years, the project will use only 4.4 percent of the gas used to generate electricity. According to Commission staff, the natural gas resource is so large that there is no potential likelihood that demand will exceed availability.

electricity. (Ex. 2, ⁄ 2.4.1.) Staff concluded that the proposed project configuration is well suited to meet project objectives. (Ex. 20, p. 337.)

According to Staff, the number of turbines also contributes to efficiency at part load. (Ex. 20, pp. 337-338.) Gas turbine generators operate most efficiently at full load. When desired output is less than full load, DEC will have the option of shutting off one or more gas turbines. This allows the plant to generate at less than full load while maintaining optimum efficiency. Loads down to 33 percent of full load allow one gas turbine, operating at full load, and the steam turbine to maintain peak efficiency. *(Ibid.*)

Staff believes that DEC represents the current state-of-the-art in electric generation efficiency. (10/5 RT 174.) The modern F-class gas turbines manufactured by Westinghouse, compare favorably to other F-class generators currently on the market. (*Ibid.*) Staff s witness testified that DEC s anticipated peak load efficiency of 55.8 percent lower heating value (LHV) is significantly more efficient than a typical utility company baseload plant, which generates electricity at an average efficiency of 35 percent LHV. (10/5 RT 175; Ex. 20, p. 336.)

As a cogenerator of both electricity and thermal energy, DEC will provide 200,000 pounds per hour of process steam to Dow Chemical. (Ex. 20, p 336.) By utilizing waste heat from the electric generation process that would otherwise be lost, a cogeneration plant is inherently more efficient than the separate power plant and industrial heat source (boiler or heater) that it replaces. (*Id.*, p. 337.)

4. Compliance With Energy Standards

No standards apply to the efficiency of power plants that do not fall within the statutory definition of a cogeneration facility. (Ex. 20, p. 337.) Although DEC will provide both steam and electricity to Dow Chemical, it will not supply the requisite five percent of its electricity output to Dow in order to achieve

cogeneration status under Section 25134 of the Public Resources Code. Therefore, DEC is not subject to energy standards related to cogeneration projects. (*Ibid*.)

FINDINGS AND CONCLUSIONS

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

1. DEC will not create a significant demand for natural gas in California.
2. DEC will not require the development of any new sources of energy.
3. Given project objectives, location, and air pollution control requirements, only natural gas-burning technologies are feasible for this project.
4. The project will employ modern F-class gas turbines (Westinghouse 501F) nominally rated at 55.8 percent lower heating value (LHV) efficiency, which compares favorably to other available F-class turbine generators.
5. As a cogenerator providing process steam to Dow Chemical, DEC is inherently more efficient than the separate power plant and industrial heat source that it replaces.
6. As a highly efficient, state-of-the-art natural gas-fired power plant, DEC is significantly more efficient than older power plants in the utility system.

The Commission therefore concludes that DEC will not cause any significant adverse impacts to energy supplies or energy resources. The project will conform with all applicable laws, ordinances, regulations, and standards relating to power plant efficiency as identified in the pertinent portions of APPENDIX A of this Decision. No Conditions of Certification are required for this topic.

C. POWER PLANT RELIABILITY

The Warren-Alquist Act requires the Commission to examine the safety and reliability of the proposed power plant, including provisions for emergency operations and shutdowns. [Pub. Resources Code, ⁄ 25520(b)]. There are presently no laws, ordinances, regulations, or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the Commission must determine whether the project will be designed, sited, and operated to ensure safe and reliable operation. [Cal. Code of Regs., tit. 20, ⁄ 1752(c)(2).] In this regard, the Commission considers whether the proposed project will degrade the reliability of the utility system to which it is connected. If the project exhibits reliability at least equal to that of other power plants in the system, it is presumed not likely to degrade the system.

SUMMARY OF EVIDENCE

Staff examined the project s design criteria to determine whether it will be built in accordance with typical power industry norms for reliable electricity generation. (10/5 RT 165.) According to Staff, project safety and reliability are achieved by ensuring equipment availability, plant maintainability, fuel and water availability, and adequate resistance to natural hazards. (*Ibid*.)

1. Equipment Availability

DEC will ensure equipment availability by use of quality assurance/quality control programs (QA/QC), which include inventory review, and equipment inspection and testing on a regular basis. (Ex. 2, ⁄ 2.4.5 et seq.) Qualified vendors of plant equipment and materials will be selected based on past performance capabilities to ensure acquisition of reliable equipment. (*Ibid*.; Ex. 20, p. 329.)

2. Plant Maintainability

According to Applicant, the project design includes adequate redundancy of auxiliary systems to prevent off-line events due to mechanical failure. (Ex. 2, ⁄

2.2.5 et seq.; Table 2.4-1.) Staff agreed with Applicant that the project would provide sufficient redundancy of function to ensure continued operation in the event of equipment failure. (Ex. 20, pp. 329-330.) The three parallel trains of gas turbine generators/HRSGs, as well as the double circuit 230-kV transmission lines provide inherent reliability. (Ex. 20, p. 330; 10/5 RT 168.) Planned outages for each of the turbine generators will be scheduled in sequence during times of low regional electricity demand. (Ex. 2,／2.4.5.2.) Staff concluded that DEC s plant maintenance program would also ensure adequate equipment reliability. (Ex. 20, p. 330.)

3. Fuel and Water Availability

The parties agreed that there is adequate natural gas supply and pipeline capacity to deliver natural gas for project operations. (Ex. 20, p. 331.) Applicant and Staff also concurred that Delta Diablo Sanitation District (DDSD) has adequate capacity to supply tertiary treated reclaimed water to the project. (*Ibid*.) Witnesses for both Applicant and Staff testified that the project would primarily consume water that would otherwise be discharged by DDSD into the San Joaquin River; thus, use of this wastewater eliminates the need to use other, higher quality water sources. (See **Soil & Water Resources** section of this Decision.)

4. Natural Hazards

The project site is located in Seismic Zone 4. (Ex. 20, p. 331.) Condition of Certification **STRUC-1** contained in the **Facility Design** section of this Decision will ensure that the project is designed to comply with all applicable laws for seismic design.[31] To avoid flooding, the site will be built at an elevation of 17 feet above mean sea level (MSL). Moreover, the power plant footprint is not located in a 100-year flood zone. (See **Soil & Water Resources** and **Geology** sections.) Staff, therefore, concluded that neither earthquakes nor flooding

would present significant hazards to the project s safe and reliable operation. (Ex. 20, p. 331.)

5. Availability Factors

Applicant predicts the project will have an annual availability factor of 92-98 percent. (Ex. 2,∥2.2.2, 2.2.17.) Industry statistics for power plant availability are compiled by the North American Electric Reliability Council (NERC). (Ex. 20, p. 332.) NERC s statistics show an availability factor of 91.10 percent for combined cycle units of all sizes. (*Ibid*.) Although the NERC figure is lower than Applicant s proposed availability factor, Staff s witness expects that a modern, baseload facility such as DEC would likely exceed the NERC average. (*Ibid*.) Staff agreed with Applicant that the proposed 92-98 percent availability factor is consistent with industry norms for power plant reliability. (*Ibid*.; Ex. 2,/2.4.5.2.)

6. Potential Impacts to System Reliability

In the newly restructured electricity market, the California Independent System Operator (Cal-ISO) is primarily responsible for maintaining system reliability and is presently developing protocols to ensure reliability. (See, **Transmission System Engineering** section.). Pending the adoption of Cal-ISO s reliability protocols, Staff believes that existing industry norms for system reliability should be followed. (Ex. 20, p. 328.) Applicant expects to operate the project as baseload and load following unit, requiring the project to operate at output levels ranging from 30 to 100 percent of baseload. (*Ibid*.) Since the project is designed to conform to industry norms, Staff concluded that DEC would perform reliably in baseload and load following duty and cause no significant impacts to electric system reliability. (*Ibid*.)

[31] Staff expects the project, designed to current seismic standards, will perform at least as well or better than existing plants in a seismic event. Staff noted that California s electric system has typically been reliable during seismic events. (Ex. 20, pp. 331-332.)

FINDINGS AND CONCLUSIONS

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

1. DEC will ensure equipment availability by implementing quality assurance/quality control programs and by providing adequate redundancy of auxiliary equipment to prevent unplanned off-line events.
2. DEC s three parallel trains of gas turbine generators/HRSGs, as well as the double circuit 230-kV transmission lines provide inherent reliability.
3. Planned outages for each of the turbine generators will be scheduled in sequence during times of low regional electricity demand.
4. There is adequate fuel and water availability for project operations.
5. Neither earthquakes nor flooding present significant hazards to the project s safety or reliability.
6. The project s estimated 92-98 percent availability factor is consistent with industry norms for power plant reliability.
7. DEC will perform reliably in baseload and load following duty and cause no significant impacts to electric system reliability.

The Commission, therefore, concludes that the project will not have an adverse effect on system reliability. No Conditions of Certification are required for this topic.

D. TRANSMISSION SYSTEM ENGINEERING

The 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. Resources Code, ⁄ 25107.) The Commission reviewed the engineering and planning design of DEC s proposed transmission facilities to ensure that they will be designed, constructed, and operated in compliance with applicable law. These transmission facilities include the power plant switchyard, the transmission outlet lines, and the point of interconnection to the power grid system.

The California Independent System Operator (Cal-ISO) works in conjunction with the Participating Transmission Owners, in this case PG&E, to determine appropriate mitigation for reliability and congestion impacts associated with new generation. PG&E prepared a Detailed Facilities Study (DFS) to assess the potential reliability and congestion impacts associated with the project.[32] PG&E s final DFS must be approved by Cal-ISO before an interconnection agreement can be completed.

SUMMARY OF EVIDENCE

1. Transmission Facilities

DEC will generate a nominal electrical output of 880 MW. The transmission system consists of a 230 kV switchyard and an overhead/underground double circuit 230 kV transmission line that will interconnect with PG&E s switchyard at the Pittsburg Power Plant (owned by Southern Energy) about 3.3 miles west of the site. A second 0.8-mile single circuit 13.8 kV service line will provide up to 20

[32] Applicant submitted PG&E s Detailed Facilities Study (DFS) to the Commission on March 25, 1999. (Ex. 5.) Cal-ISO s comments on the DFS were filed on June 2, 1999. (Ex. 11.) Cal-ISO concurred with PG&E s findings that DEC could reliably interconnect to the grid, but requested supplemental studies related to transient stability analyses and post-transient analyses. (Ex. 11; Ex. 21, p. 7.)

MW of power to the adjacent Dow Chemical facility. (Ex. 20, p. 346.) See, **TSE** Figure 1.

The project s switchyard configuration will consist of twelve 230 kV gas circuit breakers, arranged in a breaker-and-a-half arrangement to provide greater reliability and facilitate future expansion. (Ex. 20, p. 347.)

The overhead 230 kV outlet line to the Pittsburg Power Plant will exit DEC s switchyard and travel west along the Burlington Northern and Santa Fe (BN&SF) Railroad right-of-way, south of the tracks, for 7,000 feet through Dow and USS-POSCO properties. (Ex. 10; Ex. 20, p. 346.) The overhead line will be carried on eleven 105-foot tall steel tubular poles placed at an average of 810 foot intervals. (10/13 RT 24.) Conductor sizes for the transmission lines will be determined in the final project design phase. Condition **TSE-1d** will ensure the adequacy of conductor sizes for both the overhead and underground portions of the line.

The overhead line will transition underground just east of the CEMCO building on USS-POSCO property.[33] (Ex. 10.) The underground line will continue along the northern boundary of the new Truck Bypass Road that parallels East Santa Fe Avenue for 3,000 feet. (Ex. 20, p. 346.) Near Harbor Street, the underground line will turn north and continue along the 8th Street corridor beneath the median strip to the west side of the Delta Diablo Sanitation District s (DDSD) pumping station.[34] (*Ibid*.) The underground line will then continue northward inside the fence line of Southern Energy s property to the PG&E switchyard. (Ex. 10; see also, 1/5 RT 60-61.)

[33] The transition station will be 75 feet long by 110 feet wide by 105 feet high. (Ex. 20, p. 348.)

[34] DEC will relocate two of DDSD s water lines to comply with the California Public Utilities Commission (CPUC) General Order (GO) 128 requirements.

The underground line will be constructed with High Pressure Fluid Filled (HPFF) pipe-type cable that consists of a 10-inch steel pipe encasing three single-phase cables.[35] (Ex. 20, p. 348.) See **TSE** Figure 2. The cables will be installed in two separate trenches, each five feet wide by seven feet deep, and 15 feet apart.[36] (*Ibid.*) DEC will also construct an appropriate number of manholes, approximately 2,500 feet apart, to access the underground cable. (*Ibid.*) Condition **TSE-1c** will ensure compliance with applicable standards.

2. System Reliability

PG&E s DFS evaluated whether the addition of DEC to the electrical system would cause thermal overloads, voltage violations, and/or electric system instability. (Ex. 5.) PG&E used the following reliability criteria to measure transmission system performance: the Cal-ISO Grid Planning Criteria, the Western Systems Coordinating Council (WSCC) Reliability Criteria, and the North American Electric Reliability Council (NERC) Planning Standards. (Ex. 21, p. 3.)

Based on the recommendations contained in the DFS, Cal-ISO determined that DEC can reliably interconnect to the Cal-ISO controlled grid. (10/5 RT 188.) Cal-ISO s representative testified, however, that if the actual parameters of the project differ significantly from those used in the DFS, circuit breakers within the PG&E substation and other existing substations may need to be replaced to ensure reliability.[37] (10/5 RT 190, 204-204; see also, Ex. 20, p. 350.) Condition **TSE-1b** requires a short circuit study to determine appropriate breaker ratings. (Ex. 20, p. 350.)

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[35] The steel pipes are filled with oil pressurized to 200 pounds per square inch. (Ex. 2,/6.2.2.2, p. 6.16.) An oil pressurization station will be located next to the transition station. (Ex. 20, p. 348.)

[36] Both DEC and Pittsburg District Energy Facility (PDEF) will construct their underground lines along the 8th Street corridor at the same time to minimize disruption to the area. The lines will be constructed in separate and distinct trenches and located in separate rights-of-way. (10/5 RT 197-198.)

[37] Staff sponsored testimony of Peter Mackin, Grid Planning Engineer for Cal-ISO. (Ex. 21.)

TRANSMISSION SYSTEM ENGINEERING Figure 1

Source: Exhibit 15

TRANSMISSION SYSTEM ENGINEERING Figure 2

Source: Exhibit 10, Figure 2-1

The DFS identified several downstream facilities that could be subject to congestion impacts as a result of DEC s interconnection. (Ex. 21, pp. 6-7.) However, at the time of the evidentiary hearings, Cal-ISO had insufficient information to determine with certainty which of the potentially congested downstream facilities, if any, would eventually need to be reinforced. (*Ibid*.; Ex. 20, p. 353.)

Condition **TSE-1g** requires DEC to provide the final approved Detailed Facilities Study, (including the additional sensitivity studies) and Interconnection Agreement to the Commission prior to construction of any transmission facilities.

3. Cumulative Impacts

Both DEC and PDEF will be connecting to the grid at the PG&E substation located adjacent to the Pittsburg Power Plant. (Ex. 20, p. 353.) The Applicant has also proposed three additional projects in the South Bay area. The cumulative impacts that would result from adding all of these facilities to the grid are too speculative to justify any mitigation requirements specific to DEC. (*Ibid.*)

4. Closure

Procedures for planned, unexpected temporary, or permanent closure will be developed to facilitate effective coordination between the project owner, the PTO, and Cal-ISO to ensure safety and system reliability. (Ex. 20, p. 354.) The California Public Utilities Commission (CPUC) has promulgated rules under General Order (GO)-95 that apply to project closure procedures. Condition **TSE-1c** requires DEC to comply with these CPUC rules. (Ex. 20, pp. 354-355.) Condition **GEN-9** in the **Facility Design** section requires DEC to provide a Closure Plan at least 12 months prior to commencing closure activities. The **Compliance Plan** section of this Decision contains additional provisions to ensure that project closure would be consistent with applicable law.

COMMISSION DISCUSSION

The uncontroverted evidence of record establishes that DEC s transmission facilities will be designed, constructed, and operated in conformance with applicable law. The Commission relies on Cal-ISO s determinations regarding the project s potential reliability and/or congestion impacts and has adopted Cal-ISO s finding that DEC can reliably connect to the grid.

The evidence on potential downstream congestion impacts and potential downstream cumulative impacts was insufficient for Cal-ISO to make a determination. Since Condition **TSE-1g** requires DEC to submit the final Detailed Facilities Study and Interconnection Agreement approved by Cal-ISO prior to constructing the transmission facilities, the Commission is satisfied that those issues will be resolved appropriately. This requirement is addressed in Conditions **TSE-1b, 1e**, and **1g.**

FINDINGS AND CONCLUSIONS

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

1. Delta Energy Center will interconnect with the Cal-ISO controlled grid at PG&E s substation at the Pittsburg Power Plant.
2. The project s double circuit overhead/underground outlet line to the Pittsburg Power Plant switchyard will provide 880 MW of transfer capability.
3. The project s single circuit 13.8 kV overhead service line to Dow Chemical will provide up to 20 MW of electricity.
4. The overhead lines will be constructed in conformance with CPUC General Order 95.
5. The underground line will be constructed in conformance with CPUC General Order 128.
6. PG&E performed a Detailed Facilities Study to analyze the potential reliability and congestion impacts likely to occur when DEC interconnects to the grid.

7. Cal-ISO reviewed the Detailed Facilities Study and determined that DEC can reliably interconnect to the Cal-ISO Controlled Grid.
8. Cal-ISO requested PG&E to perform supplemental studies to be included in the Detailed Facilities Study.
9. Cal-ISO has insufficient information to determine potential downstream congestion impacts or cumulative impacts that would occur from DEC s interconnection to the grid.
10. DEC will provide the approved Detailed Facilities Study and the Interconnection Agreement to the Commission prior to construction of its transmission facilities.

The Commission therefore concludes that implementation of the measures specified in the Conditions of Certification listed below will ensure that DEC s transmission facilities are designed, constructed, and operated in compliance with all applicable laws, ordinances, regulations, and standards relating to transmission system engineering as identified in APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to requirements 1a through 1g listed below. The substitution of CPM approved equivalent equipment and equivalent switchyard configurations is acceptable.

a. The project 230 kV switchyard shall include a breaker-and-a-half, breaker and bus configuration.

b. Breakers and bus shall be sized to comply with a short circuit analysis.

c. The transmission facilities shall meet or exceed the requirements of CPUC General Order (GO) 95 and CPUC GO-128.

d. An approximately 3.3-mile long double circuit 230kV overhead and underground line will be constructed and interconnect into the existing Pittsburg Power Plant switchyard. The size of both the overhead and underground conductor will be determined further in the design process. The overhead line will be constructed on steel poles.

e. Termination facilities at the existing Pittsburg Power Plant switchyard shall comply with applicable Cal-ISO and PG&E interconnection standards (CPUC Rule 21 and PG&E Interconnection Handbook).

f. Outlet line parallels and crossings with other transmission or distribution lines shall be coordinated with the transmission/distribution line owner and comply with the owner s standards.

g. The project owner shall provide a completed Detailed Facilities Study (which includes additional sensitivity analyses requested by the Applicant) and an executed facility Interconnection Agreement for the DEC transmission interconnection with PG&E. The completed Detailed Facilities Study and Interconnection Agreement shall be coordinated with the Cal-ISO.

Verification: At least 60 days prior to start of construction of transmission facilities, the project owner shall submit for approval to the CPM, electrical one-line diagrams signed and sealed by a registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements 1a through 1g above. The project owner will also provide the conductor sizes for both the overhead and underground portion of the project, the Detailed Facilities Study and the Interconnection Agreement (if either one are not otherwise provided to the Commission). Substitution of equipment and substation configurations shall be identified and justified by the project owner for CPM approval.

TSE-2 The project owner shall inform the CPM of any impending changes, which may not conform to the requirements 1a through 1g of **TSE-1**, and have not received CPM approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment, transmission facilities or switchyard configurations shall not begin without prior written approval of the changes by the CPM.

Verification: At least 30 days prior to construction of transmission facilities, the project owner shall inform the CPM of any impending changes which may not conform to requirements 1a through 1g of TSE-1 and request approval to implement such changes.

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction and any subsequent CPM approved changes thereto, to ensure conformance with CPUC GO-95, CPUC GO-128 and CPUC Rule No. 21 and these conditions. In case of non-conformance, the project owner shall inform the CPM in writing within 10 days of

discovering such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after synchronization of the project, the project owner shall transmit to the CPM an engineering description(s) and one-line drawings of the as-built facilities signed and sealed by a registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95, CPUC GO-128, CPUC Rule No. 21 and Cal-ISO and PG&E interconnection requirements shall also be provided. These documents shall be provided concurrently.

E. TRANSMISSION LINE SAFETY AND NUISANCE

The project transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This analysis reviews the potential impacts of the project transmission line on aviation safety, radio-frequency interference, audible noise, fire hazards, nuisance shocks, hazardous shocks, and electric and magnetic field exposure. (Ex. 20, p. 53.)

SUMMARY OF EVIDENCE

Since the transmission line will be connected to PG&E s transmission system, it must be designed according to PG&E s field-reducing design guidelines related to safety, efficiency, reliability, and maintainability. (Ex. 20, p. 56; Ex. 2／6.5.3.1.3.)

1. Description of Transmission Line

The project s overhead/underground transmission line is located in an area with existing 230 kV, 115 kV, and 60 kV lines and related facilities owned by PG&E.[38] (Ex. 20, p. 56.) The line will traverse industrial areas, open spaces, and residential and commercial areas. (*Ibid*.) The right-of-way will generally be 150 feet wide, with the line routed along the centerline. (Ex. 2, p. 6-36.)

The transmission line route is described in the **Transmission System Engineering** section of this Decision. See, **TSE Figure** 1. DEC will install a 3.3-mile double circuit 230-kV overhead/underground line that connects the project to PG&E s switchyard at the Pittsburg Power Plant.[39] (Ex. 20, p. 57.) The 1.6-mile

[38] According to Applicant, the route was chosen to parallel existing utility corridors consistent with state policy. (Ex. 2,／6.2.2; Ex. 20, p. 57.)

[39] Staff did not identify any potential significant Transmission Line Safety and Nuisance (TLSN) impacts related to the 0.8-mile overhead 13.8-kV transmission line connecting DEC to the adjacent Dow Chemical facility (Ex. 20, p. 57.)

overhead portion of the line will be erected on eleven steel tubular poles that are 105 feet tall, with an average spacing of 810 feet between each pole.[40] (10/13 RT 24.) The 1.7-mile underground portion of the line will be contained in four high pressure fluid-filled (HPFF) cables that are each enclosed in steel pipes. (Ex. 2, ⁄6.5.3.1.2.) See, **TSE** Figure 2. (Ex. 10.)

2. Potential Impacts

a. Electric and Magnetic Field Exposure

The possibility of health effects from exposure to electric and magnetic fields (EMF) has increased public fears about living near high-voltage lines.[41] (Ex. 20, p. 58; Ex. 15, Chap. 4.) The available data evaluated by the California Public Utilities Commission (CPUC) and other regulatory agencies do not definitively establish that EMF poses a significant health risk nor prove the absence of health hazards.[42] (*Ibid.*) In light of the present uncertainty regarding EMF exposure, Staff testified that most of the regulatory agencies, including the CPUC, have implemented policies to ensure that transmission lines are designed to minimize EMF without impacting transmission efficiency. (10/13 RT 33; Ex. 20, p. 58.) Under CPUC policy, the regulated utilities have established EMF-reducing design criteria for new and upgraded electrical facilities. New transmission lines are not permitted to create EMF levels greater than that of existing transmission lines. (10/13 RT 34.)

Applicant s testimony confirmed that its proposed transmission line is designed according to PG&E s Transmission Line EMF Guidelines. (Ex. 2, ⁄6.5.3.1.3.) Condition **TLSN-3** requires Applicant to measure the strengths of the electric and

[40] The spaces between the poles range between a maximum of 975 feet and a minimum of 715 feet to avoid physical obstacles along the route. (10/13 RT 24.)

[41] Applicant provided an Electric and Magnetic Field Assessment that describes EMF-reducing measures and calculates EMF values for the proposed transmission lines. See, Exhibit 15.

[42] Although several states regulate EMF levels for new transmission lines, California has not specified a maximum EMF limit. (Ex. 15, p. 3-3.)

magnetic fields along the transmission line route before and after energerization. Applicant calculated the relevant field strengths at the center line and at the right-of-way and found them typical for the field-reducing configuration in the PG&E transmission area.[43] (Ex. 5, Chap. 4.) Applicant concluded and Staff agreed that the estimated electric and magnetic forces associated with the transmission line are significantly below levels typically used as standards in states that regulate EMF exposure. (Ex. 15, p. 4-7; Ex. 20, p. 62.)

Applicant plans to construct a linear park along the 8th Street median where the underground line will be buried. The park or greenbelt will be designed according to specifications determined by the City of Pittsburg.[44] (10/13 RT 28, 37.) In response to questions regarding potential exposure to EMF along the linear parkway, Applicant s witness Mr. Buchanan testified that EMF levels from the underground line would be *de minimis* at only two to three milligauss (mG) at one meter above the buried line. (10/13 RT 26-27.) As a reference, Mr. Buchanan noted that a fluorescent bulb produces about 40 mG at a one-foot distance. (*Ibid*.)

According to Applicant, the steel pipe containing the underground cable acts as a shield, eliminating the electric field and significantly attenuating the magnetic field. (Ex. 2,／6.5.3.1.2.) Staff agreed that the cancellation effects of these

[43] Electric field strength estimates are specified at one meter above ground, in units of kilovolts per meter (kV/m), and magnetic field strength is measured in milligauss (mG). (Ex. 2,／6.5.3.1.) An electric field strength of 2.62 kV/m was calculated for the area directly under the overhead line and 0.06 kV/m was calculated for the area of the right-of-way. Electric fields do not penetrate the soil or other materials and will not be encountered above the underground line. The magnetic field strength for the overhead line was calculated at 142 mG directly underneath the line and 17 mG at the edge of the right-of-way. For the underground line, a magnetic field strength of 3.0 mG was calculated above the line and 1.0 mG at the edge of the right-of-way. These values are similar to magnetic fields from similar lines and significantly below the levels (150 mG to 250 mG) established by states with regulatory limits on such fields. (Ex. 15, Chap. 4.)

[44] The city may consider the possibility of installing a playground along the median strip, however, the median area varies in width from 50 to 100 feet. The narrower area will likely be a parkway for bicycle and pedestrian trails, while the wider areas near single family homes may be used for a more detailed park development. The Commission expects that community concerns regarding EMF exposure will be reviewed during the park design process. Design plans for the park must ultimately be approved by the City Council. (10/13 RT 37-38.)

closely spaced conductors would reduce the ground-level strength of magnetic fields from the underground portion of the line to less than those from the more widely spaced overhead portions of the line. (Ex. 20, p. 62.)

Staff witness Obed Odoemelam explained that concerns about EMF generally tend to focus on long-term exposures that occur in residential settings. Such concerns are not present in this case because the transmission line is routed away from residential areas. Potential exposure along the 8th Street median strip would be short-term or transitory and at very minimal levels, similar to the use of a household appliance. (10/13 RT 35-36.) Staff, therefore, recommended approval of the transmission line route as proposed by Applicant. (*Id.*, p. 63.)

Applicant s witness Mr. Buchanan testified that the electric and magnetic forces associated with the transmission line are below those typically used as standards in other states that have standards for EMF emissions. (10/13 RT 25 et seq.) Since the overhead and underground sections of the proposed line will be designed in accordance with the EMF-reducing guidelines used by PG&E, the electric and magnetic fields will be similar to fields measured at similar lines in the PG&E transmission system. (Ex 15, Chap. 4.) This is consistent with existing CPUC policy.[45] (*Ibid.*) Verification measurements will be conducted before and after construction. (Condition **TLSN-3**.)

b. Aviation Safety

There are no major airports in the project vicinity. (Ex. 2,/6.5.4.) The closest airfield is the Heliport in Concord at 5.9 nautical miles west of Pittsburg. Buchanan Field Airport in Concord is 8.5 nautical miles southwest of Pittsburg. (*Ibid.*) The Federal Aviation Administration (FAA) requires notification for any

[45] The CPUC has determined that only no-cost or low-cost EMF-reducing measures for new or upgraded transmission facilities are presently justified in any effort to reduce EMF fields beyond existing levels. (CPUC Decision No. 93-11-013.)

construction over 200 feet above ground level or for any construction within restricted airspace in the approach to airports. Applicant s testimony indicated that DEC s overhead transmission line would be less than 200 feet tall and would not encroach into restricted airspace. (*Ibid*.) Staff, therefore, agreed with Applicant that the proposed line would not pose a significant hazard to area aviation. (Ex. 20, p. 60.)

c. Interference With Radio-Frequency Communication

Interference with radio and television reception can be caused by spark gap discharges around the line that produce noise and interference. Such interference can generally be avoided by appropriate line maintenance. (Ex. 20, p. 60.) Applicant will implement a maintenance program to minimize these occurrences. (Ex. 2,/6.5.3.2.2.) Applicant will also employ a corona-reducing design that should prevent radio interference.[46] (*Ibid*.) Federal Communication Commission (FCC) regulations require transmission line operators to resolve incidents of radio or television interference on a case-by-case basis. Condition **TLSN-2** ensures that DEC will mitigate any interference-related complaints on a case-specific basis.

d. Audible Noise

Energized electric transmission lines can generate audible noise in a process called corona discharge, most often perceived as a low hissing and crackling sound. (Ex 2.,/6.5.3.2.1.) Transmission line noise during fair weather will likely be inaudible. Noise levels become noticeable during humid or rainy weather when the conductors are wet. (*Ibid*.) Applicant s estimated foul weather noise level is between 34 dB and 42 dB, which does not exceed the noise limits

[46] Corona is the ionization of the air at the surface of the conductor and hardware due to very high electric field strength. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. The large conductors and bundle conductors, as well as

established in the City of Pittsburg General Plan Noise Element. (*Ibid*.; Ex. 20, p. 61.) Applicant, therefore, does not expect noise from its transmission line to add significantly to existing ambient noise levels. Staff agrees with Applicant s assessment. (Ex. 20, p. 61; see, the **Noise** section in this Decision.)

e. Fire Hazards

Operation of the transmission line represents a low fire risk. Fires could occur by sparks from overhead conductors coming into contact with nearby trees or other flammable objects. The transmission line will be routed through areas of low fuel content, such as grassland and urban areas with relatively few trees, where adequate fire prevention and suppression measures are available. (Ex. 20, p. 61.) Applicant will comply with CPUC General Order (GO) 95 that requires tree trimming and maintaining the clearance necessary to prevent fires caused by contact with combustible materials. (Ex. 2,/6.5.5.) Condition **TLSN-4** ensures that the transmission line right-of-way will be kept free of combustible material.

f. Nuisance and Hazardous Shocks

Nuisance or hazardous shocks can result from direct or indirect contact with an energized line or metal objects located near the line. (Ex. 2, / 6.5.3.1.5.) Applicant will employ mitigation measures for hazardous and nuisance shocks that include: 1) grounding of metal objects on or near the right-of-way, and 2) providing sufficient clearances at roadways and parking lots to prevent vehicles from conducting currents from the energized line. (*Ibid*.) Condition **TLSN-1** ensures compliance with applicable LORS that require implementation of the mitigation measures proposed by Applicant. Under Condition **TLSN-5**, Applicant is obligated to send letters to property owners within or adjacent to the right-of-

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the connecting hardware used in DEC s proposed 230-kV line, have low electric field gradients. The result will ensure a low corona design. (Ex. 2,/6.5.3.2.)

way explaining its responsibility for grounding chargeable objects within the right-of-way. (10/13 RT 38-39.)

COMMISSION DISCUSSION

The evidentiary record establishes that DEC s transmission line design will conform with all established requirements to ensure aviation safety, prevent radio and television interference, limit audible noise, eliminate fire hazards, and prevent hazardous and nuisance shocks. Since adverse health effects from electric and magnetic fields (EMF) have not been established or ruled out, the public health significance of project-related field exposure cannot be characterized with certainty. The estimated exposures from the project transmission line are significantly below field levels associated with lines of the same voltage, current-carrying capacity, and field levels established by states with regulatory limits for such fields. There is no evidence that the line will pose a danger from EMF exposure.

FINDINGS AND CONCLUSIONS

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

1. The project transmission line, which will connect to PG&E s transmission system, is an overhead/underground double circuit 230kV line that traverses industrial and open space areas on 105-foot tall steel poles and goes underground in residential/commercial areas.

2. The possibility of health effects from exposure to electric and magnetic fields (EMF) has increased public fears about living near high-voltage lines.

3. Neither the California Public Utilities Commission nor any other regulatory agency in California has established limits on public exposure to electric and magnetic fields from power lines.

4. DEC s transmission line will be designed in accordance with the electric and magnetic field reducing guidelines applicable to PG&E s transmission service area.

5. Electric field strength levels will not be encountered for the underground portion of the line because electric fields cannot penetrate the soil or other materials covering the conductors.

6. Magnetic field strength levels along the underground portion of the line will be significantly less than those from the overhead portion of the line.

7. Potential exposure to EMF along the 8th Street median, where the underground line is buried, will be transitory.

8. The estimated EMF exposures from the transmission line are below field levels associated with similar lines in the PG&E area, and significantly below field levels established by states with regulatory limits for such fields.

9. The Conditions of Certification reasonably ensure that the transmission line will not have significant adverse environmental impacts on public health and safety nor cause impacts in the areas of aviation safety, radio/tv communication interference, audible noise, fire hazards, nuisance or hazardous shocks, or electric and magnetic field exposure.

The Commission, therefore, concludes that with implementation of the Conditions of Certification, the project will conform with all applicable laws, ordinances, regulations, and standards relating to transmission line safety and nuisance as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission line according to the requirements of CPUC General Orders (GO)-95, GO-128, GO-52 and Title 8, California Code of Regulations Section 2700, et seq.

Verification: At least 30 days before the start of transmission line construction, the project owner shall submit to the Commission s Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the transmission line will be constructed according to the requirements of GO-95, GO-128 and Title 8, California Code of Regulations section 2700 et seq.

TLSN-2 The project owner shall make every reasonable effort to identify and correct, on a case-specific basis, all complaints of interference with radio or television signals from operation of the line and related facilities. In addition to any transmission repairs, the relevant corrective actions should include, but shall not be limited to, adjusting or modifying receivers, adjusting or repairing, replacing or adding antennas, antenna signal amplifiers, filters, or lead-in cables.

The project owner shall maintain written records for a period of 5 years, of all complaints of radio or television interference attributable to operation together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement with the justification for a lack of action.

Verification: All reports of line-related complaints shall be summarized and included in the Annual Compliance Report to the CPM.

TLSN-3 The project owner shall engage a qualified consultant to measure the strengths of the line s electric and magnetic fields at the same locations before and after the 230 kV line is energized. Measurements should be made at appropriate points along the route to allow verification of design assumptions relative to field strengths. The areas to be measured should include the facility switchyard and any residences near the right-of-way.

Verification: The project owner shall file a copy of the pre-energization and post-energization measurements with the CPM within 30 days after energization.

TLSN-4 The project owner shall ensure that the transmission line right-of-way is kept free of combustible material as required under the provisions of Public Resources Code Section 4292; Title 14 of the California Code of Regulations, Section 1250 et seq.; and GO-95.

Verification: The project owner shall provide a summary of inspection results and any fire prevention activities along the right-of-way in the annual compliance report.

TLSN-5 The project owner shall send a letter to all owners of property within or adjacent to the right-of-way prior to first transmission of electricity.

Protocol: The letter shall include:

- A discussion of the nature and operation of a transmission line.

- A discussion of the project owner s responsibility for grounding existing fences, gates, and other large permanent chargeable objects within the right-of-way regardless of ownership.
- A discussion of the property owner s responsibility to notify the project whenever the property owner adds or installs a metallic object that would require grounding.
- A statement recommending against fueling motor vehicles or other mechanical equipment underneath the line.

Verification: At least 60 days prior to the first transmission of electricity, the project owner shall submit the proposed letter to the CPM for review and approval before mailing to the property owners. The project owner shall maintain a record of correspondence (notification and response) related to this requirement in a compliance file. In the first Monthly Compliance Report following the mailing of the letter, the project owner shall report that letters have been mailed and that copies are on file.

TLSN-6 The project owner shall ensure the grounding of any ungrounded permanent metallic objects within the right-of-way, regardless of ownership. Such objects shall include fences, gates, and other large objects. These objects shall be grounded according to procedures specified in the National Electrical Safety Code.

Protocol: In the event of a refusal by the property owner to permit such grounding, the project owner shall so notify the CPM. Such notification shall include, when possible, the owner s written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 10 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this Condition.

VI. PUBLIC HEALTH AND SAFETY ASSESSMENT

Operation of the Delta Energy Center will create combustion products and utilize certain hazardous materials that could expose the general public and workers at the facility to potential health effects. The following sections describe the regulatory programs, standards, protocols, and analyses that address these issues.

A. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. The Commission must find that the project complies with all applicable laws, ordinances, regulations, and standards related to air quality. National ambient air quality standards (NAAQS) have been established for six air contaminants identified as criteria air pollutants. These include sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), and particulate matter less than 10 microns in diameter (PM_{10} and $PM_{2.5}$) and their precursors: nitrogen oxides (NO_x), volatile organic compounds (VOC), and So_x.

The federal Clean Air Act[47] requires new major stationary sources of air pollution to comply with New Source Review (NSR) requirements in order to obtain permits to construct. The U.S. Environmental Protection Agency (EPA), which administers the Clean Air Act, has designated all areas of the United States as attainment (air quality better than the NAAQS) or nonattainment (worse than the NAAQS) for criteria air pollutants.

[47] Title 42, United States Code section 7401 et seq.

SUMMARY OF EVIDENCE

The project site is within the Bay Area Air Quality Management District s (BAAQMD or Air District) jurisdiction[48] and is classified as a federal attainment area for NO_2, PM_{10}, Pb, and SO_2. (Ex. 63, Table 4.5-9; Ex. 2, ⁄ 8.1.2.) Attainment areas must comply with the federal Prevention of Significant Deterioration (PSD) regulations. Consequently, the project is subject to PSD review for NO_2, PM_{10}, and CO. Emissions of SO_2 are below PSD significance criteria. (*Ibid.*) The Air District is currently nonattainment for the federal O_3 standard. (Ex. 63, pp. 4.5-8, 4.5-9, 4.5-16.)[49]

California ambient air quality standards (CAAQS) promulgated by the California Air Resources Board (CARB) are, in general, more stringent than the federal standards. (Ex. 28, p. 20.) The Air District is considered a nonattainment area for O_3 and the 24-hour average PM_{10} state standards. (Ex. 2, ⁄ 8.1.2; Ex.63, Table 4.5-2.)

The EPA, BAAQMD, and CARB worked together with the Energy Commission to determine whether the project s emissions would cause significant air quality impacts and to identify appropriate mitigation measures to reduce potential impacts to levels of insignificance. (11/18 RT 143-146.)

1. BAAQMD s Final Determination of Compliance

On October 25, 1999, BAAQMD released its Final Determination of Compliance (FDOC). The FDOC concludes that DEC will comply with all applicable air quality requirements, and imposes certain conditions necessary to ensure

[48] BAAQMD includes the entire San Francisco Bay Area from San Jose to San Francisco to Suisun and the eastern delta area. (Ex. 2, ⁄ 8.1 et seq.)

[49] BAAQMD has in recent years been on the margin of compliance with the federal ozone standard. In 1998, EPA redesignated the Air District as nonattainment for ozone because of monitored violations in 1995 and 1996. (Ex. 63, pp. 4.5-8, 4.5-9, 4.5-16.)

compliance.[50] (Ex. 58, 73.) Pursuant to Commission regulations, the conditions contained in the FDOC are incorporated into this Decision. (Cal. Code of Regs., tit. 20, // 1744.5, 1752.3.) The Air District witness, Dennis Jang, testified that the project would comply with BAAQMD s strict requirements, and with state and federal regulations.[51] (11/18 RT 143.) Federal and state ambient air quality standards are shown in **Air Quality** Table 1.

2. California Environmental Quality Act (CEQA) Requirements

The Commission not only reviews compliance with Air District rules but also evaluates potential air quality impacts according to CEQA requirements. The CEQA Guidelines provide a set of 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 or projected air quality violation; (3) result in a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment for state or federal standards; (4) expose sensitive receptors to substantial pollutant concentrations; and (5) create objectionable odors affecting a substantial number of people. [Cal. Code Regs., tit. 14, Appendix G (CEQA Guidelines, Appendix G).]

Staff s witness, Mr. Badr, testified that DEC would not violate any local, state, or federal air quality standards nor contribute to significant cumulative impacts.

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[50] Title V of the Clean Air Act requires the states to implement an operating permit program to ensure that large sources comply with federal regulations. The EPA has delegated to BAAQMD the authority to implement the federal PSD, nonattainment NSR, and Title V programs. BAAQMD adopted regulations, approved by EPA, to implement these programs. DEC is subject to BAAQMD rules and regulations, in particular Regulation 2, Rule 2 (NSR), which defines requirements for Best Available Control Technology (BACT), offsets, emission calculation procedures, and requirements for the federal acid rain program. (Ex. 54, pp.1-2.)

[51] Mr. Jang testified that the project complies with the Air District s BACT and emission offset requirements as well as the toxic risk management policy. (11/18 RT 144.) According to Mr. Jang, Applicant s PSD analysis was performed in accordance with BAAQMD rules and showed that DEC would not interfere with the attainment or maintenance of any applicable air quality standards. (*Ibid*.)

(11/18 RT 109-110, 120-121; Ex. 54, pp. 17-18; see also, the testimony of witness, Mr. Franco at 11/18 RT 127 et seq.; Ex. 55.) The following discussion provides an overview of air quality in the Pittsburg area and describes the analyses that support the conclusions reached by BAAQMD and Staff.

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	1 Hour	0.12 ppm (235 $\mu g/m^3$)	0.09 ppm (180 $\mu g/m^3$)
	8 Hour	0.08 ppm (157 $\mu g/m^3$)	---
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 $\mu g/m^3$)	---
	1 Hour	---	0.25 ppm (470 $\mu g/m^3$)
Sulfur Dioxide (SO_2)	Annual Average	80 $\mu g/m^3$ (0.03 ppm)	---
	24 Hour	365 $\mu g/m^3$ (0.14 ppm)	0.04 ppm (105 $\mu g/m^3$)
	3 Hour	1300 $\mu g/m^3$ (0.5 ppm)	---
	1 Hour	---	0.25 ppm (655 $\mu g/m^3$)
Respirable Particulate Matter (PM10)	Annual Geometric Mean	---	30 $\mu g/m^3$
	24 Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
	Annual Arithmetic Mean	50 $\mu g/m^3$	---
Fine Particulate Matter (PM2.5)	24 Hour	65 $\mu g/m^3$	---
	Annual Arithmetic Mean	15 $\mu g/m^3$	---
Sulfates (SO_4)	24 Hour	---	25 $\mu g/m^3$
Lead	30 Day Average	---	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	---
Hydrogen Sulfide (H_2S)	1 Hour	---	0.03 ppm (42$\mu g/m^3$)
Reference: California Air Quality Data. CARB, 1997			

3. Regional Air Quality

a. Meteorology

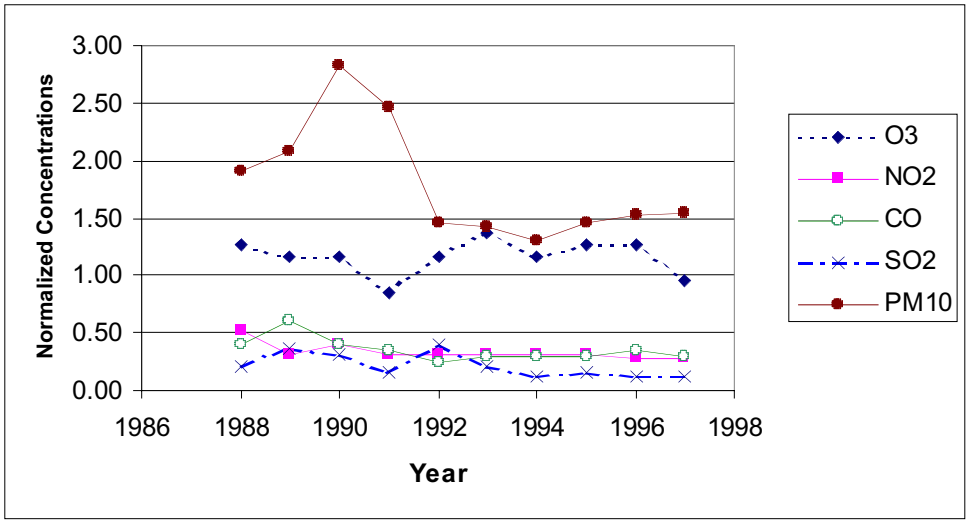
DEC is located in a climatological subregion of the Bay Area known as the Carquinez Strait Region, which includes the cities of Martinez, Pittsburg, Antioch, Fairfield, and Suisun City. (Ex. 2, ⁄ 8.1.1.2.) The Carquinez Strait is characterized by prevailing winds from the west, particularly in the summer. (*Ibid.*) Measurements of prevailing wind velocity and wind direction were based on data collected at the meteorological measuring station located at the Pittsburg Power Plant, about four miles west of the DEC site. (*Ibid.*)

b. Ambient Air Quality

Applicant relied on ambient air data from the air quality monitoring station in Pittsburg, located on 10th Street, which measures ozone, CO, NO_2, and SO_2. (Ex. 2, ⁄ 8.1.3.) The data on ambient PM_{10} concentrations were obtained from the Bethel Island monitoring station, 12 miles east of DEC in Contra Costa County.[52] (Ex. 43, p. 4.) Historically, the highest measured PM_{10} concentrations in the county occur at Bethel Island. (Ex. 54, pp. 3, 8.) **Air Quality** Figure 1 summarizes the historical air pollutant concentrations in the Pittsburg area from 1988-1997. Concentrations above 1.00 are those that exceed the most stringent air quality standard.

[52] In the PDEF Decision, the Commission required both PDEF and DEC, in consultation with BAAQMD, to purchase and install a particulate matter air monitor in the Pittsburg area. BAAQMD has determined an appropriate location for this monitor in the City of Antioch. Condition AQ-78 requires DEC in cooperation with PDEF to operate this monitor and provide the data to the public and to BAAQMD. (See also, 11/18 RT 58, 95; Ex. 48: Oct. 6, 1999 letter from Sierra Research to Paulette Lagana.)

AIR QUALITY Figure 1
Normalized Maximum Short-Term Historical Air Pollutant Concentrations:1988-1997 in the Pittsburg Area



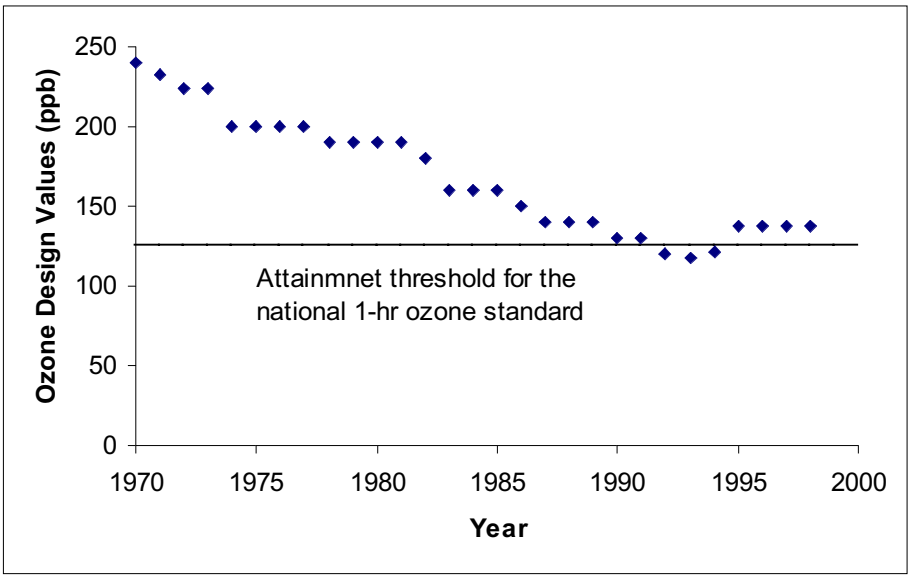
A Normalized Concentration is the ratio of the measured concentration to the applicable most stringent air quality standard. For example, in 1997 the highest 24-hour average PM10 concentration measured in Bethel Island was 77 $\mu g/m^3$. Since the most stringent ambient air quality standard is 50 $\mu g/m^3$, the 1997 normalized concentration is 77/50 = 1.54. Source: CARB, 1998a as reported in the AFC. (Ex. 2, Appendix 8.)

The following discussion reviews the air pollution trends shown in Figure 1.

i. Ozone

The Pittsburg area has experienced, in general, an average of four or five days a year with violations of the 1-hour state standard for ozone. (Ex. 54, p. 4.) Regional violations of the EPA s less stringent 1-hour national standard were also recorded in recent years. (*Ibid.*) Ozone formation is influenced by year-to-year changes in atmospheric conditions. Therefore, the long-term trend in ambient ozone levels is a more accurate indicator of whether a region is experiencing overall ozone reduction. (*Ibid.*) As shown in **Air Quality** Figure 2, the long-term trend shows that Contra Costa County has made significant progress toward attainment of the 1-hour national standard. BAAQMD is developing strategies to bring the air basin into attainment. (*Ibid.*)

AIR QUALITY Figure 2



Each design value represents the fourth highest concentration recorded in the air basin during the previous three years. Design values are used to determine attainment status. (Source: Ex. 54, p. 5; BAAQMD, 1998.)

ii. Carbon Monoxide

The highest CO concentration levels in Pittsburg are at least one-half lower than the most stringent California standards shown in Figure 1. (Ex. 54, p. 5.) The mobile sector (cars, trucks, buses) is the main source of CO. Peak CO concentrations occur during rush hour traffic in the morning and afternoons, and in the late evening due to wood burning in residential fireplaces. (*Id.*, p. 6.) All counties in California, except for Los Angeles County, are in compliance with the stringent state requirements and are expected to remain in compliance into the future. (*Ibid.*)

iii. Nitrogen Dioxide

NO_2 levels in Pittsburg are one-half or less of the most stringent 1-hour ambient air quality standard shown in Figure 1. (Ex. 54, p. 6.) Approximately 90 percent of the NO_x emitted from combustion sources is NO, while the balance is NO_2.

NO is oxidized in the atmosphere to NO_2 but some level of photochemical activity (sunlight) is needed for this conversion. The highest levels of NO_2 occur in the fall. In the summer, although the conversion rates of NO to NO_2 are high, the heat and windy conditions disperse pollutants, preventing accumulation of NO_2 to levels approaching the 1-hour ambient air quality standard. (*Ibid*.) Ambient NO_2 concentrations should not increase in the foreseeable future due to implementation of the control measures already included in the air quality management plans approved by BAAQMD.[53] (Ex. 54, p. 17.)

iv. Particulate Matter (PM)

Fine particulate matter (PM_{10}) is caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources (usually carbon particles); organic, sulfate and nitrate aerosols formed in the air from emissions of gaseous pollutants; and natural aerosols. (Ex. 43, p. 5; Ex. 2, / 8.1.3.6.) PM_{10} levels have been measured below national standards but above state standards at the Bethel Island monitoring station over the last ten years.[54] (*Ibid*.) The highest PM_{10} concentrations occur during the winter, when the contribution of ground level releases to ambient PM concentrations is disproportionately high due to emissions from wood-burning fireplaces. State air agencies have begun installing monitors to measure particulates smaller than 2.5 microns ($PM_{2.5}$), which are produced, *inter alia*, in wood smoke. (Ex. 54, p. 9.) The new particulate monitoring station in Antioch will measure both PM_{10} and $PM_{2.5}$. (Condition **AQ-78.)**

[53] For example, BAAQMD s 1997 Clean Air Plan estimates that NO_x emissions in the air basin will decrease by approximately 11 and 27 percent from 1997 levels by 2000 and 2010, respectively. (Ex. 54, p. 17.)

[54] Public concern about the lack of a PM monitoring station in Pittsburg has been addressed by Condition AQ-78. As stated previously, the Bethel Island monitoring station has typically reported the highest measured PM_{10} concentrations in the county and, thus, data from Bethel Island represent the worst-case ambient PM_{10} concentrations in the Pittsburg-Antioch area for purposes of the air quality analysis. (Ex. 54, pp. 8-9.)

4. Potential Impacts

Applicant used EPA-approved computer models to simulate the worst-case emission impacts, using meteorological data collected at the Pittsburg Power Plant station between 1994-1997. (Ex. 2,/8.1.4.1.2; Ex. 54, p. 14.)

a. Construction

The construction phase will result in temporary emissions, primarily from construction vehicle exhaust, power tool and generator exhausts, fugitive dust from excavation, cut-and-fill operations and roadside haulage and other activities. (Ex. 54, p. 10.) Applicant modeled potential construction emissions based on worst-case estimates that indicate construction-related emissions would violate the one-hour NO_2 standard and the 24-hour and annual PM_{10} standards. (See, Ex. 2, Table 8.1E-4.) However, these estimates do not reflect implementation of Conditions **AQ-74-76**, which require Applicant to employ the Best Available Fugitive Dust Control Measures described in Tables 1, 2, and 3 of the Conditions. Staff also notes that construction impacts are highly speculative because daily activities cannot be accurately forecast.[55] (Ex. 54, p. 10.)

b. Commissioning

Commissioning is the technical term to describe the operation of the power plant after it has been physically installed but not yet in commercial operation. Commissioning begins with the first firing of fuel in the CTG/HRSGs to test and adjust equipment and emission control systems. During commissioning, which lasts a few months, the project will operate without emission controls. Conditions **AQ-1-18** apply to the commissioning period; specifically, Conditions **AQ-16-17** set limits on the amount of pollutant emissions allowed on a daily basis.

[55] Staff noted that CARB recently measured PM emissions from actual construction sites and revised its estimated PM construction-related emissions downward by 67 percent. (Ex. 54, p. 10.)

Commissioning ends with the start of commercial operation, which requires a Permit to Operate from the Air District. (Ex. 54, p. 11.)

c. Operation

Applicant s EPA-approved modeling, which is based on vendor data for equipment components, shows that the facility, by itself, does not violate the state or federal ambient air quality standards. (Ex. 2, pp. 8.1-22 et seq.) However, the PM_{10} impact from the facility, when added to the existing background levels, which are already above the state standard, will further violate the 24-hour standard. Applicant will mitigate the project s PM_{10} impacts by employing BACT and providing emission offsets as discussed in the mitigation section below. (Ex. 54, p. 20.) **Air Quality** Table 2 presents a summary of the modeling results.[56]

AIR QUALITY Table 2
ISC Modeling Results (Without Mitigation)

Pollutant	Averaging Time	Facility Maximum Impact ($\mu g/m^3$)	Maximum Background ($\mu g/m^3$)	Maximum Total Impacts ($\mu g/m^3$)	State Limiting Standard ($\mu g/m^3$)	Federal Limiting Standard ($\mu g/m^3$)	Percent of Standard (%)
NO_2	1-hour	267	153	420	470		84.7
	Annual	1	33	34	-	100	34
CO	1-hour	725	8149	8874	23000	40000	38.6
	8-hour	244	3725	3969	10000	10000	39.7
PM10	24-hour	4.95	77	82	50	150	164
	Annual	0.3	23.3	24	30	-	80
SO_2	1-hour	33	106	139	650	-	21.4
	24-hour	0.5	32	32.5	109	365	29.8
	Annual	0.03	5.3	5.3	-	80	6.6

Source: Ex. 2, Table 8.1-28, Appendix 8.1 B and Table 1 in letter dated June 28, 1999.

[56] Applicant also included operation of the three existing turbines at the Calpine power plant that currently provides electricity and steam to Dow Chemical. Calpine plant operations will be reduced after DEC begins commercial operation. (Ex. 2, p. 8.1-22 et seq.) Conditions AQ 38-45 establish emission limits for operation of the existing power plant.

d. Cumulative Impact Analysis

Although DEC s emissions do not result in a direct violation of state or federal standards, the project s emissions are potentially cumulatively considerable under CEQA since they have the potential to contribute to an existing air quality problem as the region is nonattainment for state and federal ozone standards, and the state 24-hour average PM_{10} standard. (11/18 RT 48; Ex. 54, p. 17-18.)

As discussed above, these standards are infrequently violated, and the contribution of the project to regional emissions is relatively small. (See Ex. 63, Table 4.5-17.)[57] Nevertheless, Staff performed a cumulative impacts analysis to examine the combined effects of the proposed project, PDEF, and the existing Contra Costa and Pittsburg power plants (recently purchased by Southern Energy from PG&E.)[58] The emissions of other existing industrial sources in the area, such as Dow Chemical and oil refineries were included in the ambient background air quality data used in the modeling. (Ex. 55.)

[57] The referenced table indicates that the annual worst case emissions of NO_x from the Pittsburg PG&E facility in 1997 was 1944 tons, which was 1.19 percent of regional emissions of that pollutant. The Delta project will emit a worst-case 298 tons of NO_x per year (Ex. 58, Condition AQ 49a), clearly representing a far smaller regional contribution.

[58] Staff modeled potential incremental impacts from the Southern power plants that have not been already accounted for in the existing background ambient concentrations measured in the Pittsburg area. (Ex. 54, p. 16.) The Air District s Regulation 9, Rule 11 applies to the former PG&E facilities purchased by Southern. Rule 9-11 requires these facilities to reduce their emission levels by 90 percent of the 1995 region-wide rate by 2005. (Ex. 63, p. 4.5-18; 11/18 RT 144-145.) The Air District will continue to apply Rule 9-11 to the former PG&E facilities, and will revise its rules next year to reflect the change in ownership. (11/18 RT 46 [Rubenstein]; 144-145 [Jang].) As a result, the contribution of the former PG&E power plants to region-wide emissions has been greatly reduced, and will be subject to further substantial reduction. (Ex. 63, p. 4.5-18, Table 4.5-4.)

Air Quality Table 3 presents the results of the modeling analysis.[59] NO_2 impacts are below the most stringent NO_2 ambient air quality standards. Although NO_x emissions include both NO and NO_2, NO has to be oxidized in the atmosphere to NO_2 in order to have an air quality NO_2 impact.

The maximum cumulative NO_2 impacts from all the sources are mostly due to the higher emissions from Pittsburg Power Plant, because it is an older, less efficient power plant. Mr. Franco testified for Staff that the maximum cumulative impact was almost exclusively due to the Southern plant but the PM maximum impacts for the other plants, including DEC, did not overlap. (11/18 RT 131-132.) The emissions from the Pittsburg Power Plant not contribute substantially to the maximum expected cumulative impacts from the modeled power plants, however, because its plume does not interact with the plumes from the other modeled power plants. (Ex. 54, p. 17.)

AIR QUALITY Table 3
Summary of CALPUFF Cumulative Impact Modeling

Pollutant	Averaging Time	Cumulative Impact ($\mu g/m^3$)	Maximum Background ($\mu g/m^3$)	Maximum Total Impacts ($\mu g/m^3$)	State Limiting Standard ($\mu g/m^3$)	Federal Limiting Standard ($\mu g/m^3$)	Percent of Standard (%)
$NO_{Appendix}$	1-hour	157	188	345	470		73.4
	Annual	17	32.1	49.1	-	100	49.1
PM10	24-hour	13	87	100	50	150	200
	Annual	2.3	20.2	22.5	30	-	75

Source: Ex. 55, Modeling Assessment of Cumulative Air Quality Impacts of the Pittsburg District Energy Facility and Other Incremental Sources. Prepared for the California Energy Commission by Joseph S. Scire, April 12, 1999.

5. Mitigation

The Air District has adopted an air quality management plan, which has an elaborate system of specific requirements, including BACT and offsets as a mitigation program to avoid or substantially lessen the cumulative problem. (11/18 RT 48 et seq.) The program also includes retrofit requirements on

[59] Staff used the sophisticated CALMET/CALPUFF modeling system that is currently proposed by EPA for estimating short-range impacts in areas with complex topography and meteorology. (Ex. 55; Ex. 54, p. 16; 11/18 RT 128-129.)

existing power plants to continually ratchet down their current emissions. (11/18 RT 43-47.)

a. Best Available Control Technology (BACT)

BAAQMD requires the project to use BACT to control emissions. The project will burn only natural gas (except for the emergency diesel fuel pump). (Ex. 43, p. 6.) The exclusive use of natural gas will limit the formation of VOC, PM_{10}, and SO_x emissions. The combustion turbines will be equipped with low-NO_x combustors to minimize NO_x formation. (Ex. 2, p. 8.1-22.) After combustion, the turbine exhaust gases will be treated by Selective Catalytic Reduction (SCR) systems to further reduce NO_x emissions.[60] The FDOC requires Applicant to meet a limit of 2.5 ppm based on a one-hour average, which is one of the most stringent requirements imposed on a power plant facility.[61] (Ex. 58.)

To control CO and VOC, BAAQMD s guidelines identify an oxidation (CO) catalyst as the typical technology used to minimize emissions. (Ex. 54, p. 19.) Applicant does not propose to use post-combustion oxidization catalyst because the project will meet BACT requirements without the catalyst. Applicant s witness, Mr. Rubenstein, testified that low hydrocarbon levels are met by current equipment with or without the catalyst. (11/18 RT 149.) Mr. Badr testified that, to his knowledge, the Commission has never licensed a project without requiring a CO catalyst. (*Id*. at p. 152.) Although the FDOC finds that the project meets the CO and VOC standards without the catalyst, the advantage of a catalyst is lower hydrocarbon emissions.[62] (*Id*. at 147-148.) The FDOC provides that DEC must

[60] Ammonia (NH_3) will be introduced as a necessary reactant for effective NO_x control at the SCR systems and therefore, untreated NH_3 emissions were also analyzed. (Ex. 2, p. 8.1-22.)

[61] This level has been approved by BAAQMD, CARB, and EPA. (11/18 RT 34.)

[62] Applicant argued that the catalyst would increase PM_{10} emissions but Staff disagreed with this assertion. (11/18 RT 148-149; Ex. 54, p. 20 and Appendix A.) Staff s recommendation regarding the catalyst was ambivalent because the project would comply with BACT even if the catalyst were not installed. (Ex. 54, p. 20.)

install the CO catalyst if BACT levels are not achieved,[63] and further requires that the HRSGs and other equipment be configured to allow the catalyst to more easily be installed if necessary. (*Id*. at 155.)

PM_{10} will be controlled by inlet air filtering for the combined cycle CTG and HRSG unit since natural gas contains only trace quantities of noncombustible material. (Ex. 54, p. 20.) In addition, the cooling tower includes 0.0006 percent drift eliminator efficiency to reduce PM_{10} emissions associated cooling tower operations. (*Ibid.*) Conditions **AQ-72-73** ensure that the drift eliminator meets this standard.

Emissions of $S0_2$ will be controlled by using natural gas, which typically contains only traces of sulfur. The resulting SO_2 emission concentrations will be less than 1.0 ppm @ 15% O_2. (Ex. 54, p. 20.)

b. Emission Reduction Credits/Offsets

Emission Reduction Credits (ERCs or offsets) are created when existing permitted emission sources cease or reduce their operations below permitted levels. (Ex. 54, p. 20.) The ERCs are reviewed, approved, and banked by the Air District. (*Ibid.*) The Air District s rules require offsets for PM_{10} and ozone emissions. (11/18 RT 38-39; Ex. 58.)

[63] BAAQMD requires a 2 ppm concentration level for VOCs and 10 ppm for CO during all scenarios of operation. (11/18 RT 147-148, Ex. 54, Appendix B.) This level is consistent with CARB s June 1999, Guidance for Power Plant Siting and Best Available Control Technology. (Ex. 54, p. 19.) Mitigation requirements for VOCs are so stringent that according to Mr. Rubenstein, hydrocarbon concentrations in the stack on a typical summer day will be lower than the concentrations present in the ambient air surrounding the stack. (11/18 RT 33.) Under cross-examination, Mr. Rubenstein testified that EPA was satisfied with the BACT requirement of 2 ppm for VOCs, and that actual emissions would be below 1 ppm. (11/18 RT 81-83.) Requiring 1 ppm would have reduced DEC s offset obligation, with no corresponding reduction in emissions. (*Ibid*.)

In response to concerns from Staff and local residents, Applicant has provided offsets from the local region. (11/18 RT 52-53.) In addition, Staff requested that the Air District require the Applicant to provide offsets for cooling tower PM_{10} emissions. (Ex. 54, p. 22; 11/18 RT 40.) Condition **AQ-77** requires DEC to provide these additional offsets from the Spreckels facility. **Air Quality** Table 3 lists the offsets proposed by Applicant.

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Air Quality Table 3
Valid Emission Reduction Credits Proposed by Applicant as of October 20, 1999

Company Name	Location	BAAQMD Certificate Number[s]	VOC (ton/yr)	NO_x (ton/yr)	SOx (ton/yr)	PM10 (ton/yr)
C&H Sugar	Crockett	16446	0	0	71.59	0
Courtaulds Aerospace, Inc.	Berkeley	14108	3.12	0	0	0
Courtaulds Aerospace, Inc.	Berkeley	16693	20.60	0	0	0
Crown Cork & Seal	Pittsburg	32763	2.783	0	0	0
Crown Cork & Seal	Richmond	10865	53.26	0	0	0
Dexter Hysol	Pittsburg	9539	19.20	0	0	0
Dupont	Antioch	27269	1.60	14.56	0	2.21
Homestake Mining	Napa	18058	0	22.07	1.30	21.72
Spreckels	Yolo County	N/A	0	0	0	21.15
P.G.&E.	Rodeo	1388	8.00	162.35	60.73	65.00
Total Emission Reduction Credits			108.56	198.98	133.62	110.8
Contemporaneous Emission Reduction			8.92	77.71	1.2	13.32
BAAQMD required ratio			1.15:1	1.15:1	N/A	1.0:1.0
Required Offsets			75.3	23.17	0	141.47
Surplus (+) / Shortage (-)			**+33.26**	**-33.19**	**+133.6**	**-31.39**

[a]Original banking application; includes evaluation report that certifies that the emission reduction credits are real, quantifiable, permanent, and enforceable. Source: Ex. 54, Table 7; Ex. 58 (FDOC), Table 6.

c. Additional Mitigation

As described by Mr. Rubinstein, additional mitigation proposed by Applicant includes:

- The new air monitoring station in Antioch that will collect meteorological data as well as PM_{10} and $PM_{2.5}$ data;
- Improvements to BAAQMD s Pittsburg monitoring station to provide air toxics measurement capabilities comparable to the Bethel Island station; and,
- Routine analysis of data collected at the Pittsburg, Bethel Island, and new Antioch stations, with reports prepared and distributed to interested parties every six months. (Ex. 43, p. 7.)

6. Intervenors

Intervenors CAP-IT, CHF, and CRE were concerned that PM_{10} data from the Bethel Island monitoring station were not representative of ambient levels in Pittsburg. Staff s testimony indicated that Bethel Island is appropriate because of its proximity to the project site and the fact that it lies in the east-west fluctuation that dominates the local/regional wind pattern. (11/18 RT 111-112.) Both Staff and Applicant believe that PM_{10} levels at Bethel Island may be higher than those in Pittsburg. (*Id*. at 137-138.)

CHF and CRE believe that the Air District s requirement for ammonia slip (10 ppm) is too high, citing a CARB guideline that suggests a lower limit (5 ppm). Staff explained that the CARB guideline is based on an assumed NO_x level of 2 ppm on a three-hour average while the project is limited to 2.5 ppm on a one-hour average. (11/18 RT 116-118.) The shorter averaging time may require greater short-term ammonia use and a resulting higher level of ammonia slip that would be appropriate to maintain the 2.5 ppm level for NO_x. (*Ibid*.)

Finally, Staff concluded that the project would not expose sensitive receptors to substantial pollutant concentrations. PM_{10} impacts, even using worst-case calculations were well below the Air District s PSD threshold for significance. (Ex. 55, p. C-12.) Staff noted that these less-than-significant impacts would occur immediately adjacent to the plant and not in residential areas. (*Ibid.*) Applicant s witness, Mr. Rubenstein, testified on cross-examination by Mr. Hawkins of CHF that no one is going to be breathing the plume until it has been diluted to the point where concentrations are immeasurable. (11/18 RT 65: 19-22.)

COMMISSION DISCUSSION

Intervenors CHF and CRE raised concerns primarily about the chemistry involved in modeling studies performed by Staff and Applicant. (Exs. 62, 67, and 68.) They also challenged BAAQMD s comprehensive regulatory program and questioned whether the FDOC complied with EPA and CARB guidelines. The evidence overwhelmingly supports a finding that the modeling assumptions were appropriate, that the regulatory agencies cooperated with each other, and that the FDOC incorporated the most stringent feasible standards applicable to power plants in the Air District. The Intervenors did not present any credible rebuttal to the Air District s conclusions. Accordingly, we adopt the Air District s recommendations and find that the project conforms with all applicable federal, state, and local laws related to air quality.

The Commission has typically required a CO catalyst in previous certification proceedings. In this case, the evidence indicates that the project will likely meet BACT for CO and VOC without using a CO catalyst. Indeed, the FDOC does not require a CO catalyst; however, Condition **AQ-30** provides that DEC will install such catalyst if project emissions exceed permitted levels. Staff did not take a clear position on whether to require the catalyst in the project design. Since the Applicant is willing to take the risk that the project could be shut down to install

the catalyst, the Commission does not find it necessary to impose a requirement to install the catalyst at this time. We believe that adequate safeguards are in place to ensure the project will operate at the permitted levels approved in the FDOC.

FINDINGS AND CONCLUSIONS

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

1. National ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) have been established for six air contaminants identified as criteria air pollutants, including sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), and particulate matter less than 10 microns in diameter (PM_{10}) and their precursors: nitrogen oxides (NO_x), volatile organic compounds (VOC), and SO_x.

2. The Bay Area Air Quality Management District (BAAQMD or Air District) has jurisdiction over the area where the project site is located.

3. The Air District is a federal attainment area for NO_2, PM_{10}, Pb, and SO_2.

4. The Air District is a nonattainment area for the federal O_3 standard and the California 24 hour average PM_{10} and O_3 standard.

5. Operation of the project will result in emissions of NO_x, CO, VOC, SO_2 and particulate matter (PM_{10}) that would, if not mitigated, contribute to violations of air quality standards.

6. Applicant relied on data from the air quality monitoring station on 10th Street in Pittsburg that measures ozone, CO, NO_2, and SO_2.

7. Applicant relied on data from the particulate (PM_{10}) monitoring station at Bethel Island.

8. The Bethel Island monitoring station records the highest PM_{10} concentrations in Contra Costa County.

9. The Bethel Island monitoring station is an appropriate and representative site to measure ambient PM_{10} concentrations for the Pittsburg-Antioch area.

10. DEC will purchase, install, and operate a particulate monitoring station in the Pittsburg-Antioch area, in cooperation with the Pittsburg District Energy Facility (PDEF), and in consultation with BAAQMD.

11. DEC will pay for upgrades to the Pittsburg monitoring station on 10th Street to include air toxics measurement capabilities.

12. BAAQMD released its Final Determination of Compliance (FDOC) for the DEC project on October 25, 1999. The conditions contained in the FDOC are incorporated into the Conditions of Certification below.

13. DEC will employ the best available control technology (BACT) to control project emissions of criteria pollutants.

14. DEC s offset package provides more than enough emission reduction credits (ERCs) to satisfy BAAQMD s requirements.

15. DEC s offset package includes ERCs from the local community and surrounding areas.

16. Condition **AQ-27b** limits project NO_x emissions to 2.5 parts per million (ppm) averaged over one hour.

17. Condition **AQ-30** requires DEC to install an oxidation catalyst to control project emissions of CO and VOC if emissions exceed permitted levels.

18. Operation of DEC in combination with PDEF and the two existing Southern power plants in the Pittsburg-Antioch area will not result in significant cumulative impacts to air quality.

19. Implementation of the Conditions of Certification below ensures that DEC will not result in any significant adverse impacts to air quality.

The Commission, therefore, concludes that with implementation of the Conditions of Certification below, DEC 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.

CONDITIONS OF CERTIFICATION

Permit Conditions

Definitions:

Clock Hour:	Any continuous 60-minute period beginning on the hour.
Calendar Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.
Year:	Any consecutive twelve-month period of time
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in BTU/scf.
Rolling 3-hour period:	Any three-hour period that begins on the hour and does not include start-up or shutdown periods.
Firing Hours:	Period of time during which fuel is flowing to a unit, measured in fifteen minute increments.
MM BTU:	million british thermal units
Gas Turbine Start-up Mode:	The lesser of the first 180 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits of conditions 27(b) and 27(d).
Gas Turbine Shutdown Mode:	The lesser of the 30 minute period immediately prior to the termination of fuel flow to the Gas Turbine or the period of time from non-compliance with any requirement listed in Conditions 27(b) through 27(d) until termination of fuel flow to the Gas Turbine.
Auxiliary Boiler Start-up:	The lesser of the first 120 minutes of continuous fuel flow to an Auxiliary Boiler after fuel flow is initiated; or the period of time from fuel flow initiation until the Boiler achieves two consecutive CEM data points in compliance with the emission concentration limits of conditions 37(b) and 37(d).
Auxiliary Boiler Shutdown:	The lesser of the 30 minute period immediately prior the termination of fuel flow to the Auxiliary Boiler; or the period of time from non-compliance with any requirement listed in Conditions 37(a) through 37(d) until termination of fuel flow to the auxiliary boiler.
Specified PAHs:	The polycyclic aromatic hydrocarbons listed below shall be considered to Specified PAHs for these permit conditions. Any emission limits for Specified PAHs refer to the sum of the emissions for all six of the following compounds.

Benzo[a]anthracene

Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[a]pyrene
Dibenzo[a,h]anthracene
Indeno[1,2,3-cd]pyrene

Corrected Concentration:	The concentration of any pollutant (generally NO_x, CO, or NH_3) corrected to a standard stack gas oxygen concentration. For emission point P-1 (S-1 Gas Turbine and S-2 HRSG including Duct Burner), emission point P-2 (S-3 Gas Turbine and S-4 HRSG including Duct Burner), and emission point P-3 (S-5 Gas Turbine and S-6 HRSG including Duct Burner) the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis. For emission point P-4 (S-7 Auxiliary Boiler #1) and emission point P-5 (S-8 Auxiliary Boiler #2), the standard stack gas oxygen concentration is 3% O_2 by volume on a dry basis.
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the DE construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, auxiliary boiler, and associated electrical delivery systems.
Commissioning Period:	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate
CEC CPM:	California Energy Commission Compliance Program Manager
DEC:	Delta Energy Center

Conditions for the Commissioning Period

AQ-1 The owner/operator of the Delta Energy Center (DEC) shall minimize emissions of carbon monoxide and nitrogen oxides from S-1, S-3, & S-5 Gas Turbines, S-2, S-4, & S-6 Heat Recovery Steam Generators (HRSGs), and S-7 & S-8 Auxiliary Boilers to the maximum extent possible during the commissioning period. Conditions 1 through 18 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 19 through 73 shall apply after the commissioning period has ended.

Verification: The owner/operator shall submit a monthly compliance report to the California Energy Commission Compliance manager (CPM). In this report the owner/operator shall indicate how this condition is being implemented.

AQ-2 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the combustors of S-1, S-3, & S-5 Gas Turbines, S-2, S-4, & S-6 Heat Recovery Steam Generators, and S-7 & S-8 Auxiliary Boilers shall be tuned to minimize the emissions of carbon monoxide and nitrogen oxides.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-3 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the A-1, A-2, and A-3 SCR Systems shall be installed, adjusted, and operated to minimize the emissions of carbon monoxide and nitrogen oxides from S-1, S-3, & S-5 Gas Turbines and S-2, S-4, & S-6 Heat Recovery Steam Generators.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-4 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the A-4 & A-6 Oxidation Catalysts and A-5 & S-7 SCR Systems shall be installed, adjusted, and operated to minimize the emissions of carbon monoxide and nitrogen oxides from S-7 & S-8 Auxiliary Boilers.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-5 Coincident with the steady-state operation of A-1, A-2, & A-3 SCR Systems pursuant to conditions 3, 10, 11, and 12, the Gas Turbines (S-1, S-3, & S-5) and the HRSGs (S-2, S-4, & S-6) shall comply with the NO_x and CO emission limitations specified in conditions 27(a) through 27(d).

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-6 Coincident with the steady-state operation of A-5 & A-7 SCR Systems and A-4 & A-6 Oxidation Catalysts pursuant to conditions 4, 13, and 14, the Auxiliary Boilers (S-7 & S-8) shall comply with the NO_x and CO emission limitations specified in conditions 37(a) through 37(d).

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-7 The owner/operator of the DEC shall submit a plan to the District Permit Services Division and the CEC CPM at least four weeks prior to first firing of S-1, S-3, or S-5 Gas Turbines describing the procedures to be followed during the commissioning of the turbines, HRSGs, auxiliary boilers, and steam turbine. 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 SCR systems and oxidation catalysts, 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, S-3, & S-5), HRSGs (S-2, S-4, & S-6), and Auxiliary Boilers (S-7 & S-8) without abatement by their respective SCR Systems and/or oxidation catalysts.

Verification: Submission of a complete plan including information required that useful to establish the procedures to follow for conditions 1 through 3 shall be deemed a verification of this condition.

AQ-8 During the commissioning period, the owner/operator of the DEC shall demonstrate compliance with conditions 10 through 14, 16, and 17 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

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, S-3, & S-5), HRSGs (S-2, S-4, & S-6), and Auxiliary Boilers (S-7 & S-8). 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. All records shall be

retained on site for at least 5 years from the date of entry and made available to District personnel upon request.

Verification: In the monthly compliance report to the CPM the owner/operator shall indicate how this condition is being implemented.

AQ-9 The District-approved continuous monitors specified in condition 8 shall be installed, calibrated, and operational prior to first firing of the Gas Turbines (S-1, S-3, & S-5), Heat Recovery Steam Generators (S-2, S-4, & S-6), and Auxiliary Boilers (S-7 & S-8). After first firing of the turbines and auxiliary boilers, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

Verification: In the monthly compliance report to the CPM the owner/operator shall indicate how this condition is being implemented.

AQ-10 The total number of firing hours of S-1 Gas Turbine and S-2 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-1 SCR System shall not exceed 300 hours during the commissioning period. Such operation of S-1 Gas Turbine and S-2 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-11 The total number of firing hours of S-3 Gas Turbine and S-4 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-3 SCR System shall not exceed 300 hours during the commissioning period. Such operation of S-3 Gas Turbine and S-4 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-12 The total number of firing hours of S-5 Gas Turbine and S-6 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-3

SCR System shall not exceed 300 hours during the commissioning period. Such operation of S-3 Gas Turbine and S-4 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-13 The total number of firing hours of S-7 Auxiliary Boiler #1 without abatement of carbon monoxide emissions by A-4 Oxidation Catalyst and/or abatement of nitrogen oxide emissions by A-5 SCR System shall not exceed 100 hours during the commissioning period. Such operation of S-7 Auxiliary Boiler without abatement by A-4 and/or A-5 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 Permit Services and Enforcement Divisions and the unused balance of the 100 firing hours without abatement shall expire.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-14 The total number of firing hours of S-8 Auxiliary Boiler #2 without abatement of carbon monoxide emissions by A-6 Oxidation Catalyst and/or abatement of nitrogen oxide emissions by A-7 SCR System shall not exceed 100 hours during the commissioning period. Such operation of S-8 Auxiliary Boiler without abatement by A-6 and/or A-7 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 Permit Services and Enforcement Divisions and the unused balance of the 100 firing hours without abatement shall expire.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-15 The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM_{10}, and sulfur dioxide that are emitted by the Gas Turbines (S-1, S-3, & S-5), Heat Recovery Steam Generators (S-2, S-4, & S-6), and Auxiliary Boilers (S-7 & S-8) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in condition 49.

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-16 Combined pollutant mass emissions from the Gas Turbines (S-1, S-3, & S-5 and Heat Recovery Steam Generators (S-2, S-4, & S-6) shall not 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-3, & S-5).

NO_x (as NO_2) 5,266 pounds per calendar day 400.4 pounds per hour
AQ-1. CO 16,272 pounds per calendar day 1,192 pounds per hour
AQ-2. POC (as CH_4) 686 pounds per calendar day
AQ-3. PM_{10} 756 pounds per calendar day
AQ-4. SO_2 82.5 pounds per calendar day

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-17 Pollutant emissions from the Auxiliary Boilers (S-7 & S-8) shall not exceed the following limits during the commissioning period. These emission limits shall include emissions that occur during Auxiliary Boiler start-ups.

NO_x (as NO_2) 428 pounds per calendar day 33 pounds per hour
CO 368 pounds per calendar day 22 pounds per hour
POC (as CH_4) 25.4 pounds per calendar day
PM_{10} 96 pounds per calendar day
SO_2 12.4 pounds per calendar day

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-18 Prior to the end of the Commissioning Period, the Owner/Operator shall conduct a District and CEC approved source test using external continuous emission monitors to determine compliance with condition 28. The source test shall determine NO_x, 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. Twenty 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 condition. 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. Source test results shall be submitted to the District and the CEC CPM within 30 days of the source testing date.

Verification: Approval of the source test plan and receipt of the source test reports is the verification of compliance with this condition.

Conditions for the Gas Turbines (S-1, S-3, & S-5) and the Heat Recovery Steam Generators (HRSGs; S-2, S-4, & S-6).

AQ-19 The Gas Turbines (S-1, S-3, and S-5) and HRSG Duct Burners (S-2, S-4, and S-6) shall be fired exclusively on natural gas. (BACT for SO2 and PM10)

Verification: As part of the semiannual Air Quality Reports (as required by AQ-43), the project owner shall indicate the date, time, and duration of any violation of this condition.

AQ-20 The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-1 & S-2, S-3 & S-4, and S-5 & S-6) shall not exceed 2,125 MM BTU per hour, averaged over any rolling 3-hour period. (PSD for NO_x)

Verification: As part of the Air Quality monthly Reports, the owner/operator shall include information on the date and time when the hourly fuel consumption exceed this hourly limit.

AQ-21 The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-1 & S-2 and S-3 & S-4) shall not exceed 50,024 MM BTU per calendar day. (PSD for PM_{10})

Verification: As part of the Air Quality monthly Reports, the owner/operator shall include information on the date and time when the daily fuel consumption exceed this daily limit.

AQ-22 The combined cumulative heat input rate for the Gas Turbines (S-1, S-3, & S-5) and the HRSGs (S-2, S-4, & S-6) shall not exceed 53,188,532 MM BTU per year. (Offsets)

Verification: As part of the Air Quality annual Reports, the owner/operator shall include information on the date and time when the annual fuel consumption exceed this annual limit.

AQ-23 The HRSG duct burners (S-2, S-4, and S-6) shall not be fired unless its associated Gas Turbine (S-1, S-3, and S-5, respectively) is in operation. (BACT for NO_x)

Verification: As part of the Air Quality Reports, the owner/operator shall include information on the date, time, and duration of any violation of this permit condition.

AQ-24. S-1 Gas Turbine and S-2 HRSG shall be abated by the properly operated and properly maintained A-1 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-1 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for the Gas Turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-25. S-3 Gas Turbine and S-4 HRSG shall be abated by the properly operated and properly maintained A-2 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-2 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for the Gas Turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-26. S-5 Gas Turbine and S-6 HRSG shall be abated by the properly operated and properly maintained A-3 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-3 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for the Gas Turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-27 The Gas Turbines (S-1, S-3, & S-5) and HRSGs (S-2, S-4, & S-6) shall comply with requirements (a) through (h) under all operating scenarios, including duct burner firing mode and steam injection power augmentation mode. Requirements (a) through (h) do not apply during a gas turbine start-up or shutdown.

(BACT, PSD, and Toxic Risk Management Policy)

(a) Nitrogen oxide mass emissions (calculated as NO_2) at P-1 (the combined exhaust point for the S-1 Gas Turbine and the S-2 HRSG after abatement by A-1 SCR System) shall not exceed 19.2 pounds per hour or 0.00904 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-2 (the combined exhaust point for the S-3 Gas Turbine and the S-4 HRSG after abatement by A-3 SCR System) shall not exceed 19.2 pounds per hour or 0.00904 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-3 (the combined exhaust point for the S-5 Gas Turbine and the S-6 HRSG after abatement by A-3 SCR System) shall not exceed 19.2 pounds per hour or 0.00904 lb/MM BTU (HHV) of natural gas fired. (PSD for NO_x)

(b) The nitrogen oxide emission concentration at emission points P-1, P-2, and P-3 each shall not exceed 2.5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (BACT for NO_x)

(c) Carbon monoxide mass emissions at P-1, P-2, and P-3 each shall not exceed 0.022 lb/MM BTU (HHV) of natural gas fired or 46.75 pounds per hour, averaged over any rolling 3-hour period. If compliance test results or continuous emissions monitoring data indicate that this level cannot be achieved during power steam augmentation operations, the owner/operator may seek approval for a higher CO mass emission limit for this operating mode, not to exceed 113.7 pounds per hour or 0.0535 lb/MM BTU of natural gas fired. (PSD for CO)

(d) The carbon monoxide emission concentration at P-1, P-2, and P-3 each shall not exceed 10 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. If compliance test results or continuous emissions monitoring data indicate that this level cannot be achieved during power steam augmentation operations, the owner/operator may seek approval for a higher CO emission limit for this operating mode, not to exceed 24.3 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. (BACT for CO)

(e) Ammonia (NH_3) emission concentrations at P-1, P-2, and P-3 each shall not exceed 10 ppmv, on a dry basis, corrected to 15% 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 A-1, A-2, and A-3 SCR Systems. The correlation between the gas turbine and HRSG heat input rates, A-1, A-2, and A-3 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1, P-2, and P-3 shall be determined in accordance with permit condition #54. (TRMP for NH_3)

(f) Precursor organic compound (POC) mass emissions (as CH_4) at P-1, P-2, and P-3 each shall not exceed 5.33 pounds per hour or 0.00251 lb/MM BTU of natural gas fired. (BACT)

(g) Sulfur dioxide (SO_2) mass emissions at P-1, P-2, and P-3 each shall not exceed 1.49 pounds per hour or 0.0007 lb/MM BTU of natural gas fired. (BACT)

(h) Particulate matter (PM_{10}) mass emissions at P-1, P-2, and P-3 each shall not exceed 12 pounds per hour or 0.00565 lb/MM BTU of natural gas fired. (BACT)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date, time, and duration of any violation of this Condition. The owner/operator shall also include quantitative information on the severity of the violation.

AQ-28 The regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, S-3, and S-5) during a start-up or a shutdown shall not exceed the limits established below. (PSD)

	Cold Start-Up (lb/start-up)	Hot Start-Up (lb/start-up)	Shutdown (lb/shutdown)
Oxides of Nitrogen (as NO_2)	240	80	18.1
Carbon Monoxide (CO)	2,514	902	44.1
Precursor Organic Compounds (as CH_4)	48	16	8

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date, time, and duration of any violation of this Condition. The owner/operator shall also include quantitative information on the severity of the violation.

AQ-29 No more than one of the Gas Turbines (S-1, S-3, and S-5) shall be in start-up mode at any one time. (PSD)

Verification: In the monthly compliance report the owner/operator shall indicate how this condition is being implemented.

AQ-30 The heat recovery steam generators (S-2, S-4, & S-6) and associated ducting shall be designed such that an oxidation catalyst can be readily installed and properly operated if deemed necessary by the APCO to insure compliance with the CO emission rate limitations of conditions 27(c) and 27(d). (BACT)

Verification: In the semiannual compliance report the owner/operator shall indicate how this condition is being implemented.

Conditions for Auxiliary Boilers (S-7 and S-8)

AQ-31. S-7 and S-8 Auxiliary Boilers shall be fired exclusively on natural gas. (BACT for SO_2 and PM_{10})

Verification: As part of the semiannual Air Quality Reports (as required by AQ-43), the project owner shall indicate the date, time, and duration of any violation of this condition.

AQ-32. The heat input rate to each Auxiliary Boiler (S-7 and S-8) shall not exceed 256 million BTU per hour, averaged over any rolling 3-hour period. (Cumulative Increase)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall include information on the date and time when the hourly fuel consumption exceed this hourly limit.

AQ-33. The daily heat input rate to each Auxiliary Boiler (S-7 and S-8) shall not exceed 6,144 million BTU per day. (Cumulative Increase)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall include information on the date and time when the daily fuel consumption exceeds this daily limit.

AQ-34. The combined cumulative heat input rate to S-7 Auxiliary Boiler #1 and S-8 Auxiliary Boiler #2 shall not exceed 582,234 million BTU per consecutive twelve month period. (Cumulative Increase)

Verification: As part of the annual Air Quality Reports, the owner/operator shall include information on the date and time when the annual fuel consumption exceeds this annual limit.

AQ-35. S-7 Auxiliary Boiler #1 exhaust gas shall be abated by A-4 Oxidation Catalyst and A-5 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at S-7 and the A-5 catalyst bed has reached minimum operating temperature. (BACT)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for Auxiliary Boiler #1and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-36. S-8 Auxiliary Boiler #2 exhaust gas shall be abated by A-6 Oxidation Catalyst and A-7 Selective Catalytic Reduction (SCR) System whenever fuel is

combusted at S-8 and the A-7 catalyst bed has reached minimum operating temperature. (BACT)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for Auxiliary Boiler #2 and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-37. S-7 and S-8 Auxiliary Boilers shall comply with requirements (a) through (h) listed below at all times, except during an auxiliary boiler start-up or shutdown. (BACT, PSD)

(a) Nitrogen oxide mass emissions (calculated as NO_2) at P-4 (the exhaust point for S-7 Auxiliary Boiler #1, after abatement by A-4 Oxidation Catalyst and A-5 SCR System) shall not exceed 0.0108 lb/MM BTU (HHV) of natural gas fired or 2.9 pounds per hour, averaged over any rolling 3-hour period. Nitrogen oxide mass emissions (calculated as NO_2) at P-5 (the exhaust point for S-8 Auxiliary Boiler #2, after abatement by A-6 Oxidation Catalyst and A-7 SCR System) shall not exceed 0.0108 lb/MM BTU (HHV) of natural gas fired or 2.9 pounds per hour, averaged over any rolling 3-hour period. (PSD for NO_x)

(b) The nitrogen oxide emission concentration at P-4 and P-5 each shall not exceed 9.0 ppmv, on a dry basis, corrected to 3% O_2, averaged over any rolling 3-hour period. (BACT for NO_x)

(c) Carbon monoxide mass emissions at P-4 (the exhaust point for S-7 Auxiliary Boiler #1, after abatement by A-4 Oxidation Catalyst) shall not exceed 0.0365 lb/MM BTU (HHV) of natural gas fired or 9.34 pounds per hour, averaged over any rolling 3-hour period. Carbon monoxide mass emissions at P-5 (the exhaust point for S-8 Auxiliary Boiler #2, after abatement by A-6 Oxidation Catalyst) shall not exceed 0.0365 lb/MM BTU (HHV) of natural gas fired or 9.34 pounds per hour, averaged over any rolling 3-hour period. (PSD for CO)

d) The carbon monoxide emission concentration at P-4 and P-5 each shall not exceed 50 ppmv, on a dry basis, corrected to 3% O_2, averaged over any rolling 3-hour period. (BACT for CO)

e) The precursor organic compound (POC) mass emission rates at P-4 and P-5 each shall not exceed 0.53 pounds per hour. (BACT for POC)

f) The ammonia (NH_3) emission concentrations at P-4 and P-5 each shall not exceed 10 ppmv, on a dry basis, corrected to 3% 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 A-5 and A-7 SCR Systems. The correlation between the auxiliary boiler heat input rates, A-5 and A-7 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-4 and P-5 shall be determined in accordance with permit condition 56. (TRMP for NH_3)

(g) Sulfur dioxide (SO_2) mass emissions at P-4 and P-5 each shall not exceed 0.18 pounds per hour or 0.0007 lb/MM BTU of natural gas fired. (BACT)

(e) Particulate matter (PM10) mass emissions at P-4 and P-5 each shall not exceed 2 pounds per hour or 0.0195 lb/MM BTU of natural gas fired. (BACT)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date, time, and duration of any violation of this Condition. The owner/operator shall also include quantitative information on the severity of the violation.

Conditions for Existing Sources
(S-67, S-70 & S-73 Gas Turbines and S-68, S-71, & S-74 Waste Heat Boilers)

AQ-38. Cumulative combined emissions from the Calpine/Dow Gas Turbines (S-67, S-70, and S-73) and Waste Heat Boilers (S-68, S-71, and S-74), including emissions generated during Gas Turbine Start-ups and Shutdowns shall not exceed the following limits during any consecutive twelve-month period:

(a) 18.5 tons of NO_x (as NO_2) per year (Offsets)
(b) 113.3 tons of CO per year (Cumulative increase)
(c) 4.7 tons of POC (as CH_4) per year (Offsets)
(d) 7.1 tons of PM_{10} per year (Offsets)
(e) 0.6 tons of SO_2 per year (Cumulative increase)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-39. The cumulative combined heat input rate to the Calpine/Dow Gas Turbines (S-67, S-70, and S-73) and Waste Heat Boilers (S-68, S-71, and S-74) shall not exceed 2,060,652 million BTU per consecutive twelve-month period. (offsets)

Verification: As part of the Air Quality Reports, the owner/operator shall include information on the date after which this annual limit was exceeded.

AQ-40. The combined exhaust gas from S-67 Gas Turbine T-1 and S-68 Waste Heat Boiler #1 shall be abated by A-188 Selective Catalytic Reduction System whenever fuel is combusted at S-67 or S-68 and the A-188 catalyst bed has reached minimum operating temperature. (Regulation 9-9-301.3)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for the Gas Turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-41. The combined exhaust gas from S-70 Gas Turbine T-2 and S-71 Waste Heat Boiler #2 shall be abated by A-189 Selective Catalytic Reduction System whenever fuel is combusted at S-70 or S-71 and the A-189 catalyst bed has reached minimum operating temperature. (Regulation 9-9-301.3)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for the Gas Turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-42. The combined exhaust gas from S-73 Gas Turbine T-3 and S-74 Waste Heat Boiler #3 shall be abated by A-190 Selective Catalytic Reduction System whenever fuel is combusted at S-73 or S-74 and the A-190 catalyst bed has reached minimum operating temperature. (Regulation 9-9-301.3)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall provide information on any major problem in the operation of the Oxidizing Catalyst and Selective Catalytic Reduction Systems for the Gas Turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-43. The owner/operator of S-67, S-70, and S-73 Gas Turbines shall perform a source test to determine the NO_x, CO, and POC mass emission rates and the accuracy of the NO_x CEMs during gas turbine start-ups and shutdowns. The source test shall also determine the accuracy of the NO_x CEMs during gas turbine start-ups and shutdowns. If the NO_x CEMs do not accurately assess emissions during start-ups and/or shutdowns (as determined by APCO), then the District-approved source test results for NO_x mass emissions shall be utilized as an

emission factor for the purposes of determining compliance with condition 38(a). The District-approved source test results for CO and POC mass emissions shall be utilized as emission factors for the purposes of determining compliance with conditions 38(b) and 38(c).
(offsets, cumulative increase)

Verification: Approval of the source test protocols shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-44. The owner/operator of S-67, S-70, and S-73 Gas Turbines and S-68, S-71, and S-74 Waste Heat Boilers shall perform a District-approved source test for NO_x, POC, and PM_{10} mass emission rates in lb/hr and lb/MM BTU of natural gas fired at maximum operating rates at least once every 8,000 hours of turbine operation or every three calendar years, whichever comes first. (offsets, cumulative increase)

Verification: Approval of the source test shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-45. The owner/operator shall demonstrate compliance with conditions 38(a), 38(c), 38(d), and 39 by using properly operated and maintained continuous monitors (during all hours of operation including equipment Start-up and Shutdown periods) for all of the following parameters:

(a) Firing Hours and Fuel Flow Rates for each of the following sources: S-67, S-68, S-70, S-71, S-73, and S-74
(b) Oxygen (O_2) Concentrations and Nitrogen Oxides (NO_x) Concentrations at each of the following exhaust points: P-67, P-73, and P-79.

The owner/operator shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.

The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

(c) Combined Heat Input Rate for S-67, S-68, S-70, S-71, S-73, and S-74

(d) Corrected NO_x concentrations, and NO_x mass emissions (as NO_2) at each of the following exhaust points: P-67, P-73, and P-79.

For each source, source grouping, or exhaust point, the owner/operator shall record the parameters specified in conditions 45(c) and 45(d) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall utilize the data specified in 45(c) and 45(d) and the source test results specified in condition 44 to calculate and record the following data:

(e) total combined Heat Input Rate for the previous consecutive twelve month period

(f) on a monthly basis, the cumulative total NO_x mass emissions (as NO_2), POC mass emissions, and PM_{10} mass emissions for the previous consecutive twelve month period for all six sources (S-67, S-68, S-70, S-71, S-73, and S-74) combined.

(1-520.1, 9-9-501, Offsets)

Verification: At least 60 days before the initial operation, the owner/operator shall submit to the CEC CPM a plan on how the measurements and recordings required by this condition will be performed. Submittal of the reports will also provide verification of compliance with this condition.

Conditions for All New Sources
(S-1, S-3, & S-5 Gas Turbines, S-2, S-4, & S-6 HRSGs, and S-7 & S-8 Auxiliary Boilers)

AQ-46. The combined heat input rate to the Gas Turbines (S-1, S-3, and S-5), HRSGs (S-2, S-4, and S-6), and Auxiliary Boilers (S-7 and S-8) shall not exceed 162,360 million BTU per calendar day. (PSD, CEC Offsets)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall include information on the date and time when the daily fuel consumption exceeds this daily limit.

AQ-47. The cumulative heat input rate to the Gas Turbines (S-1, S-3, and S-5), HRSGs (S-2, S-4, and S-6), and Auxiliary Boilers (S-7 and S-8) combined shall not exceed 53,770,760 million BTU per year. (Offsets)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall include information on the date and time when the annual fuel consumption exceeds this annual limit.

AQ-48. Total combined emissions from the Gas Turbines, HRSGs, and Auxiliary Boilers (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8), including emissions generated during Gas Turbine start-ups and shutdowns, Auxiliary Boiler start-ups and shutdowns, shall not exceed the following limits during any calendar day:

(a)	2,123.5 pounds of NO_x (as NO_2) per day	(CEQA)
(b)	13,204.4 pounds of CO per day	(PSD)
(c)	503.6 pounds of POC (as CH_4) per day	(CEQA)
(d)	876.3 pounds of PM_{10} per day	(PSD)
(e)	105.2 pounds of SO_2 per day	(BACT)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-49. Cumulative combined emissions from the Gas Turbines, HRSGs, and Auxiliary Boilers (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8), including emissions generated during gas turbine start-ups, gas turbine shutdowns, auxiliary boiler start-ups, and auxiliary boiler shutdowns, shall not exceed the following limits during any consecutive twelve-month period:

(a)	279.7 tons of NO_x (as NO_2) per year	(Offsets, PSD)
(b)	1,116 tons of CO per year	(Cumulative Increase)
(c)	74.4 tons of POC (as CH_4) per year	(Offsets)
(d)	140.57 tons of PM_{10} per year	(Offsets, PSD)
(e)	18.6 tons of SO_2 per year	(Cumulative Increase)

Verification: As part of the annual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-50. The maximum projected annual toxic air contaminant emissions (per condition 52) from the Gas Turbines, HRSGs, and Auxiliary Boilers combined (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) shall not exceed the following limits:

(a) 5,945 pounds of formaldehyde per year
(b) 709 pounds of benzene per year
(c) 120.5 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year

unless requirement (d) is satisfied:

(d) The owner/operator shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This risk analysis shall be submitted 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 result in a cancer risk of not more than 1.0 in one million, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (TRMP)

Verification: As part of the annual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-51. The owner/operator shall demonstrate compliance with conditions 20 through 23, 27(a) through 27(d), 28, 29, 32 through 34, 37(a) through 37(d), 46, 47, 48(a), 48(b), 49(a), and 49(b) by using properly operated and maintained continuous monitors (during all hours of operation including equipment Start-up and Shutdown periods) for all of the following parameters:

a) Firing Hours and Fuel Flow Rates for each of the following sources: S-1 and S-2 combined, S-3 and S-4 combined, S-5 and S-6 combined, S-7, and S-8.
(b) Oxygen (O_2) Concentrations, Nitrogen Oxides (NO_x) Concentrations, and Carbon Monoxide (CO) Concentrations at each of the following exhaust points: P-1, P-2, P-3, P-4, and P-5.
(c) Ammonia injection rate at A-1, A-2, A-3, A-5, and A-7 SCR Systems
(d) Steam injection rate at S-1, S-3, & S-5 Gas Turbine Combustors

The owner/operator shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.
The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

(e) Heat Input Rate for each of the following sources: S-1 and S-2 combined, S-3 and S-4 combined, S-5 and S-6 combined, S-7, and S-8.
(f) Corrected NO_x concentrations, NO_x mass emissions (as NO_2), corrected CO concentrations, and CO mass emissions at each of the following exhaust points: P-1, P-2, P-3, P-4, and P-5.

For each source, source grouping, or exhaust point, the owner/operator shall record the parameters specified in conditions 51(e) and 51(f) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

(g) total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.

(h) on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and associated HRSG combined, each Auxiliary Boiler, and all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, & S-8) combined.

(i) the average NO_x mass emissions (as NO_2), CO mass emissions, and corrected NO_x and CO emission concentrations for every clock hour and for every rolling 3-hour period.

(j) on an hourly basis, the cumulative total NO_x mass emissions (as NO_2) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine and associated HRSG combined, the Auxiliary Boilers, and all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) combined.

(k) For each calendar day, the average hourly Heat Input Rates, Corrected NO_x emission concentrations, NO_x mass emissions (as NO_2), corrected CO emission concentrations, and CO mass emissions for each Gas Turbine and associated HRSG combined and each Auxiliary Boiler.

(l) on a daily basis, the cumulative total NO_x mass emissions (as NO_2) and cumulative total CO mass emissions, for the previous consecutive twelve month period for all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) combined.

(1-520.1, 9-9-501, BACT, Offsets, NSPS, PSD, Cumulative Increase)

Verification: As part of the annual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-52. To demonstrate compliance with conditions 27(f), 27(g), 27(h), 28, 48(c) through 48(e), and 49(c) through 49(e), the owner/operator shall calculate and record on a daily basis, the Precursor Organic Compound (POC) mass emissions, Fine Particulate Matter (PM_{10}) mass emissions (including condensable particulate matter), and Sulfur Dioxide (SO_2) mass emissions from each power train and the auxiliary boilers. The owner/operator shall use the actual Heat Input Rates calculated pursuant to condition 51, actual Gas Turbine Start-up Times, actual Gas Turbine Shutdown Times, and CEC and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

(a) For each calendar day, POC, PM_{10}, and SO_2 Emissions shall be summarized for: each power train (Gas Turbine and its respective HRSG combined); the Auxiliary Boilers; and all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) combined.

(b) on a daily basis, the cumulative total POC, PM_{10}, and SO_2 mass emissions, for each year for all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) combined.

(Offsets, PSD, Cumulative Increase)

Verification: As part of the annual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-53. To demonstrate compliance with Condition 50, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAH s. Maximum projected annual emissions shall be calculated using the maximum Heat Input Rate of 32,912,920 MM BTU/year and the highest emission factor (pounds of pollutant per MM BTU of Heat Input) determined by any source test at the Gas Turbine, HRSG, or Auxiliary Boilers. (TRMP)

Verification: As part of the annual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation

AQ-54. Within 60 days of start-up of the DEC, the owner/operator shall conduct a District-approved source test on exhaust point P-1, P-2, or P-3 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with condition 27(e). The source test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, A-1, A-2, or A-3 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-1, P-2, or P-3. The source test shall be conducted over the expected operating range of the turbine and HRSG (including, but not limited to minimum, 70%, 85%, and 100% load) to establish the range of ammonia injection rates necessary to achieve NO_x emission reductions while maintaining ammonia slip levels. Continuing compliance with condition 27(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (TRMP)

Verification: Approval of the source test protocols and the source test reports shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-55. Within 60 days of start-up of the DEC and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1, P-2, and P-3 while each Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum load (including steam injection power augmentation mode) to determine compliance with Conditions 27(a), (b), (c), (d), (f), (g), and (h), while each Gas Turbine and associated Heat Recovery Steam

Generator are operating at minimum load to determine compliance with Conditions 27(c) and (d), and to verify the accuracy of the continuous emission monitors required in condition 50. 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 particulate matter (PM_{10}) emissions including condensable particulate matter. (BACT, offsets)

Verification: Approval of the source test protocols, as required in condition 58, and the source test reports shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-56. Within 60 days of start-up of the DEC, the owner/operator shall conduct a District-approved source test on exhaust point P-4 or P-5 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with condition 37(e). The source test shall determine the correlation between the heat input rates of an auxiliary boilers and the A-4 or A-5 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-4, or P-5. The source testing shall be conducted over the expected operating range of the auxiliary boiler (including, but not limited to 10%, 50%, and 100% load) to establish the range of ammonia injection rates necessary to achieve NO_x emission reductions while maintaining ammonia slip levels. Continuing compliance with condition 37(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (TRMP)

Verification: Approval of the source test protocols, as required in condition 58, and the source test reports shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-57. Within 60 days of start-up of the DEC and on an annual basis thereafter, the owner/operator shall conduct a District approved source test on exhaust point P-4 and P-5 while each Auxiliary Boiler (S-7 and S-8) is operating at maximum load to determine compliance with the emission limitations of Condition 37, parts (a) through (e), (g), & (h), while each Auxiliary Boiler (S-7 and S-8) is operating at minimum load to determine compliance with Condition 37, parts (c), (d), & (f), and to verify the accuracy of the continuous emission monitors required in condition 51. 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, and particulate matter (PM_{10}) emissions including condensable particulate matter. (BACT, offsets)

Verification: Approval of the source test protocols, as required in condition 58, and the source test reports shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-58. 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 the total PM_{10} 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. Source test results shall be submitted to the District and the CEC CPM within 60 days of conducting the tests. (BACT)

Verification: Approval of the source test procedures and receipt of source test results will be deemed as verification of this condition.

AQ-59. Within 60 days of start-up of the DEC and on an biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on exhaust point P-1, P-2, or P-3 while the Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum allowable operating rates to demonstrate compliance with Condition 50. Unless the requirements of condition 59(b) have been met, the owner/operator shall determine the formaldehyde, benzene, and Specified PAH emission rates (in pounds/MM BTU). If any of the above pollutants are not detected (below the analytical detection limit), the emission concentration for that pollutant shall be deemed to be one half (50%) of the detection limit concentration. (TRMP)

(a) The owner/operator shall calculate the maximum projected annual emission rate for each pollutant by multiplying the pollutant emission rate (in pounds/MM BTU; determined by source testing) by 53,770,760 MM BTU/year.

(b) If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to part (a) for any of the compounds

listed below are less than the BAAQMD Toxic Risk Management Policy trigger levels shown, then the owner/operator may discontinue future testing for that pollutant:

Benzene	≤	221 pounds/year	
Formaldehyde	≤	1,834 pounds/year	
Specified PAH s	≤	38 pounds/year	(TRMP)

Verification: The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the owner/operator plans to conduct source testing as required by this condition. Source test results shall be submitted to the District and the CEC CPM within thirty (30) days of conducting the test.

AQ-60. The owner/operator of the DEC 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 Enforcement Division Policies & Procedures Manual. (Regulation 2-6-502)

Verification: Submittal of the reports to the CEC CPM constitutes verification of compliance with this condition. All reports shall be submitted to the CEC CPM within thirty (30) days after they are due according to District Rules and Regulations.

AQ-61. The owner/operator of the DEC 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. (Regulation 2-6-501)

Verification: During site inspection, the owner/operator shall make all records and reports available to the District, California Air Resources Board, and CEC staffs.

AQ-62. The owner/operator of the DEC 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

Enforcement Division within 96 hours of the violation of any permit condition. (Regulation 2-1-403)

Verification: Submittal of these notifications as required by this condition is the verification of these permit conditions. In addition, as part of the Air Quality Reports, the owner/operator shall include information on the dates when these violations occurred and when the owner/operator notified the District and the CEC CPM.

AQ-63. The stack height of emission points P-1, P-2, and P-3 shall each be at least 144 feet above grade level at the stack base. The stack height of emission points P-4 and P-5 shall each be at least 115 feet above grade level at the stack base. (PSD, TRMP)

Verification: 45 days prior to the release to the manufacturer of the emission stack's "approved for construction" drawings, the Owner/Operator shall submit the drawings to the CEC CPM for review and approval.

AQ-64. The Owner/Operator of DEC 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 be subject to BAAQMD review and approval.
(Regulation 1-501)

Verification: One hundred and twenty (120) days before initial operation, the Owner/Operator shall submit to the BAAQMD and the CEC CPM a plan for the installation of stack sampling ports and platforms. Within sixty (60) days of receipt of the plant, the BAAQMD will advise the Owner/Operator and the CEC CPM of the acceptability of the plan; otherwise the plan shall be deemed approved.

AQ-65. Within 180 days of the issuance of the Authority to Construct for the DEC, the Owner/Operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous monitors, sampling ports, platforms, and source tests required by conditions 54 through 57, and 59. All source testing and monitoring shall be conducted in accordance with the BAAQMD Manual of Procedures. (Regulation 1-501)

Verification: The owner/operator shall notify the CEC CPM at least seven (7) working days before these contacts are made.

AQ-66. Prior to the issuance of the BAAQMD Authority to Construct for the Delta Energy Center, the Owner/Operator shall demonstrate that valid emission reduction credits in the amount of 235.62 tons/year of Nitrogen Oxides, 75.3 tons/year of Precursor Organic Compounds, and 127.37 tons/year of PM_{10} or equivalent as defined by District Regulations 2-2-302.1, 2-2-302.2, and 2-2-303.1

are under their control through enforceable contract or option to purchase agreements or equivalent binding legal documents. (Offsets)

Verification: No more than 30 days after the issuance of an Authority to Construct, the Owner/Operator shall provide a copy of the ATC to the CEC CPM for review.

AQ-67. Prior to the start of construction of the Delta Energy Center, the Owner/Operator shall provide to the District valid emission reduction credit banking certificates in the amount of 235.62 tons/year of Nitrogen Oxides, 75.3 tons/year of Precursor Organic Compounds, and 127.37 tons/year of PM_{10} or equivalent as defined by District Regulations 2-2-302.1, 2-2-302.2, and 2-2-303.1. (Offsets)

Verification: At least 30 days prior to the start of construction, the owner/operator must submit a copy of the required offset or emission reduction credit (ERCs) certificates to the CEC CPM.

AQ-68. Pursuant to BAAQMD Regulation 2, Rule 6, section 404.3, the owner/operator of DEC shall submit an application to the District for a significant modification to the DEC s Federal (Title V) Operating Permit within 12 months of the initial operation of the gas turbines (S-1, S-3, & S-5), HRSGs (S-2, S-4, & S-6), or Auxiliary Boilers (S-7 & S-8). (Regulation 2-6-404.3)

Verification: The owner/operator shall notify the CEC CPM of the submittal of this application. In addition, the owner/operator shall submit to the CPM a copy of the Federal (Title V) Operating Permit within 30 days after it is issue by the District.

AQ-69. Pursuant to 40 CFR Part 72.30(b)(2)(ii) of the Federal Acid Rain Program, the owner/operator of the Delta Energy Center shall submit an application for a Title IV operating permit at least 24 months prior to the initial operation of any of the gas turbines (S-1, S-3, & S-5) or HRSGs (S-2, S-4, & S-6). (Regulation 2, Rule 7)

Verification: At least 60 days before the initial operation, the owner/operator shall submit to the CEC CPM a plan on how this condition will be satisfied.

AQ-70. The Delta Energy Center shall comply with the continuous emission monitoring requirements of 40 CFR Part 75. (Regulation 2, Rule 7)

Verification: At least 60 days before the initial operation, the owner/operator shall submit to the CEC CPM a plan on how the measurements and recordings required by this condition will be performed. Submittal of the reports will also provide verification of compliance with this condition.

AQ-71. The owner/operator shall take monthly samples of the natural gas combusted at the DEC. The samples shall be analyzed for sulfur content using District-approved laboratory methods. The sulfur content test results shall be retained on site for a minimum of five years from the test date and shall be utilized to satisfy the requirements of 40 CFR Part 60, Subpart GG. (cumulative increase).

Verification: The owner/operator shall maintain on site the records of all the guarantees received from its natural gas suppliers indicating that the fuel delivered to DEC complies with the 40 CFR Part 60, Subpart GG. These records shall be made available to the District or the CEC CPM upon request during on-site compliance inspections.

AQ-72. The cooling towers shall be properly installed and maintained to minimize drift losses. The cooling towers shall be equipped with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0006%. The maximum total dissolved solids (TDS) measured at the base of the cooling towers or at the point of return to the wastewater facility shall not be higher than 5,233 ppmw (mg/l). The owner/operator shall sample the water at least once per day. (PSD)

Verification: The owner/operator shall submit to the CEC CPM a performance guarantee letter from the cooling tower manufacturer prior to its installation. As part of the compliance record, the owner/operator shall keep records on-site on the TSC content of water in the cooling tower.

AQ-73. The owner/operator shall perform a visual inspection of the cooling tower drift eliminators at least once per calendar year, and repair or replace any drift eliminator components which are broken or missing. Prior to initial operation of the Delta Energy Center, the owner/operator shall have the cooling tower vendor s field representative inspect the cooling tower drift eliminators and certify that the installation was performed in a satisfactory manner. The CPM may, in years 5 and 15 of cooling tower operation, require the owner/operator to perform a source test to determine the PM_{10} emission rate from the cooling tower to verify continued compliance with the vendor-guaranteed drift rate specified in Condition **AQ-72**. (PSD)

Verification: As part of the monthly Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

For the purposes of the following conditions, the following definitions apply:

(1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.

(2) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(3) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(4) DISTURBED SURFACE AREA means a portion of the earth s surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust.

(5) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(6) EARTH-MOVING ACTIVITIES shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.

(7) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

(8) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.

(9) STABILIZED SURFACE means:
(A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;
(B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.

(10) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be

removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

AQ-74. The project owner shall implement a CEC CPM approved fugitive Dust Control Plan during the construction phase of the project.

Protocol: The plan shall include the following:

1. A description of each of the active operation(s) which may result in the generation of fugitive dust;

2. an identification of all sources of fugitive dust (e.g., earth-moving, storage piles, vehicular traffic, etc.

3. A description of the Best Available Fugitive Dust Control Measures (see Table 1 attached) to be applied to each of the sources of dust emissions identified above (including those required in **AQ-75** below). The description must be sufficiently detailed to demonstrate that the applicable best available control measure(s) will be utilized and/or installed during all periods of active operations;

4. In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of the required control measures for any of the sources identified, a justification statement must be provided to explain the reason(s) why the required control measures cannot be implemented.

Verification: Not later than sixty (60) days prior to the commencement of construction, the project owner shall submit the plan to the CEC CPM for review and approval. The project owner shall maintain daily records to document the specific actions taken pursuant to the plan. A summary of the monthly activities shall be submitted to the CPM via the Monthly Compliance Report.

AQ-75. During the construction phase of the project, the project owner shall:

1. Prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations, or take at least one of the actions listed in Table 2 (attached) to prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations;

2. Install and use a track-out control device to prevent the track-out of bulk material from areas containing soils requiring corrective action (as currently identified in drawing no. 5-1 of the addendum dated February 12, 1999 to the Corrective Measures Study performed by the Mark Group for USS-POSCO Industries) to other areas within the project construction site and lay-down area;
3. Minimize fugitive particulate emissions from vehicular traffic on paved roads and paved parking lots on the construction site by vacuum mechanical sweeping or water flushing of the road surface to remove buildup of loose material. The project owner shall inspect on a daily basis the conditions of the paved roads and parking lots to determine the need for mechanical sweeping or water flushing.

Verification: The project owner shall maintain a daily log during the construction phase of the project indicating: 1) the manner in which compliance with **AQ-75** is achieved and 2) the date and time when the inspection of paved roads and parking lots occurs and the date and time(s) when the cleaning operation occurs. The logs shall be made available to the CEC CPM upon request.

AQ-76. At any time when fugitive dust from Delta Energy Center project construction is visible in the atmosphere beyond the property line, the project owner will identify the source of the fugitive dust and implement one or more of the appropriate control measures specified in Table 3 (attached).

Verification: The project owner will maintain a daily log recording the dates and times that measures in Table 3 (attached) have been implemented and make them available to the CEC CPM upon request.

TABLE 1
BEST AVAILABLE FUGITIVE DUST CONTROL MEASURES

FUGITIVE DUST SOURCE CATEGORY	**CONTROL ACTIONS**
Earth-moving (except construction cutting and filling areas, and mining operations)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: **Construction fill areas:**	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the CEC CPM, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

TABLE 1 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Earth-moving: Construction cut areas and mining operations:	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	Apply chemical stabilizers within five working days of grading completion; OR
	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

TABLE 1 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Unpaved Roads	Water all roads used for any vehicular traffic at least once per every two hours of active operations; OR
	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	Apply chemical stabilizers; OR
	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	Install temporary coverings; OR
	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
All Categories	Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 1 may be used.

TABLE 2
TRACK-OUT CONTROL OPTIONS

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 2 may be used.

TABLE 3
CONTROL MEASURES FOR WIND CONDITIONS EXCEEDING 25 MPH

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	Cease all active operations; OR
	Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR
	Apply chemical stabilizers prior to wind event; OR
	Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR
	Take the actions specified in Table 1, Item (3c); OR
	Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	Apply chemical stabilizers prior to wind event; OR
	Apply water twice [once] per hour during active operation; OR
	Stop all vehicular traffic.
Open storage piles	Apply water twice [once] per hour; OR
	Install temporary coverings.
Paved road track-out	Cover all haul vehicles; OR
	Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

AQ-77 Prior to the start of construction, the Delta Energy Center owner/operator must provide the District with valid ERC certificates for PM_{10} for the amount of 21.15 tons from Spreckels facility located in Clarksburg in Yolo-Solano Air Quality Management District. This portion of required PM_{10} ERCs and offsets are to be provided in addition to the requirements of condition 67.

Verification: At least 30 days prior to the start of construction, the project owner must submit a copy of the required ERC certificates to the CPM and the District.

AQ-78 Prior to the start of construction, the project owner shall purchase, install, and operate a particulate (PM_{10}) and ($PM_{2.5}$) air monitoring station in cooperation with the Pittsburg District Energy Facility and in consultation with BAAQMD to be located in the Pittsburg-Antioch area. The project owner and Pittsburg District Energy Facility shall measure ambient air quality, including particulate emissions, for one year prior to commercial operation and for two years after the start of commercial operation for their respective facilities.

Verification: At least 60 days prior to the start of construction of the power plant, the project owner shall submit to the CEC CPM a copy of the purchase agreement for a particulate air monitoring station, and an installation and operation plan for the monitoring station that has been developed in cooperation with the Pittsburg District Energy Facility and in consultation with BAAQMD. The project owner shall submit summaries of the air quality measurements in the Monthly Compliance Reports.

B. PUBLIC HEALTH

Normal operation of DEC will result in the routine release of air contaminants into the environment. The public health analysis considers whether such emissions will cause significant adverse public health impacts or violate standards for public health protection.[64] This analysis also reviews whether the proposed mitigation measures will reduce potential impacts to insignificant levels.

SUMMARY OF EVIDENCE

1. Noncriteria Pollutants

Toxic air contaminants (TACs) are called noncriteria pollutants because there are no ambient air quality standards established for these emissions.[65] However, there are state and federal regulatory programs and requirements for protecting public health from non-criteria pollutants. Ambient standards reflect air quality (including pollutant levels) considered safe for everyone. (Ex. 20, p. 23.)

TACs are substances generally believed to have carcinogenic or adverse non-carcinogenic effects. TAC emission levels are regulated under both federal and state law. The 1990 amendments to the federal Clean Air Act established Maximum Available Control Technology (MACT) for industries that emit more than 10 tons per year of specified TACs or 25 tons per year of combinations of such TACs. (11/18 RT 224-225; Ex. 63, p. 4.5-11; Title 42, U.S.C.,/7401 et seq.) According to Applicant s witness, Mr. Rubenstein, there are no MACT

[64] Criteria pollutants are discussed in the Air Quality section of this Decision. The accidental release of hazardous materials is discussed in Hazardous Materials Management and Worker Safety and Fire Protection. Electromagnetic fields are discussed in the section on Transmission Line Safety and Nuisance. Potential impacts to soils and surface water sources are discussed in the Soils and Water Resources section. Hazardous and nonhazardous wastes are described in the Waste Management section.

[65] Criteria pollutants are those pollutants for which air quality standards have been established by local, state, and federal regulatory agencies. In the Air Quality section of this Decision, the Commission has found that project emissions of criteria pollutants will be mitigated to levels of insignificance.

requirements that apply to a state-of-the-art gas-fired power plant such as DEC.[66] (11/18 RT 224:7-8.)

In California, the Air Toxics Hot Spots Information and Assessment Act requires the quantification of TACs from specified facilities, which are categorized according to their emissions levels and proximity to sensitive receptors.[67] (Health & Safety Code, ⁄ 44360 et seq.; Ex. 63, p. 4.5-11.) If potential health risks are found, the facilities are required to implement various risk reduction measures. (Health & Safety Code, ⁄ 44391 et seq.)

Applicant performed a health risk assessment that was reviewed by both Staff and BAAQMD. (Ex. 20, p. 23; Ex. 58.) Applicant s risk assessment employed scientifically accepted methodology that is consistent with the requirements of the California Air Pollution Control Officers Association (CAPCOA) and with risk assessment methods developed by the U.S. EPA.[68] (Ex. 20, pp. 24-25; 11/18 RT 217, 241.) This procedure emphasizes a worst-case screening analysis in order to evaluate the highest level of potential impact by including all the following:

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[66] Power plants in the BAAQMD region such as the Southern Portrero and Pittsburg power plants were emitting reportable quantities of a variety of TACs into the 1990s, including arsenic, benzene, beryllium, cadmium, chromium, formaldehyde, lead, manganese, mercury, nickel, and polycyclic aromatic hydrocarbons. (Ex. 63, Table 4.5-10, Table 4.5-18.) However, after the phase out of oil burning pursuant to BAAQMD Rule 9-11 in 1995, the emissions of the above TACs declined to zero or less than reportable with two exceptions: benzene and formaldehyde. (*Ibid*.) These two substances together accounted for 100 percent of the reported contaminants emitted by these plants after they became gas-fired, and are the two TACs that are of principal relevance to gas-fired facilities. (*Id*., at p. 4.5-13.) Mr. Rubenstein testified that all TAC emissions related to DEC would be typically below detectable limits. (11/18 RT 224-225.)

[67] BAAQMD conducts ambient monitoring of thirteen gaseous TACs at 17 locations throughout the District. Staff examined at data from the nearest stations, which are located in Antioch and Concord. (11/18 RT 243; Ex. 20, p. 28.)

[68] The health risk assessment protocol is set forth in the Air Toxics Hot Spot Program, Revised 1992 Risk Assessment Guidelines developed by the California Air Pollution Control Officers Association (CAPCOA) pursuant to the Air Toxics Hot Spots Information and Assessment Act (Health and Safety Code, ⁄ 44360 et seq.) See, Ex. 1, p. 7; 11/18 RT 217. This methodology is approved by the California Air Resources Board (CARB) and the state Office of Environmental Health Hazards Assessment (OEHHA). (11/18 RT 217-218, 258.)

- assuming the highest expected levels of emissions from the source;
- assuming weather conditions that would result in the highest ambient concentrations;
- using the computer model that results in the highest depicted impacts;
- using health-based standards designed to protect the most sensitive members of the population (i.e., children, the elderly, and those with respiratory illness);
- calculating the health risks to a person at the exact location where emissions are theoretically most concentrated (the maximally exposed individual or MEI); and
- assuming that this most sensitive person is exposed to that exact maximum concentration of TACs for 70 years, every day for 24 hours per day. (Ex. 20, p. 24.)[69]

If the risks from the highest potential impact are not significant, then emissions from the facility will not pose a threat to public health.

2. Impacts

The location of sensitive receptors near the site is an important factor in considering potential public health impacts.[70] Casa Medanos residential motel, the nearest residence, is approximately 2,200 feet south of the site. The nearest residences to the east and west are located, respectively, in Antioch at a distance of 5,000 feet and in Pittsburg about 6,500 feet away. (Ex. 1, p. 7; Ex. 20, p. 27.) Applicant also considered the locations of other sensitive receptors including schools, hospitals, emergency response facilities, long-term care facilities, and daycare centers within a three-mile radius of the site. (Ex. 2, Figures 8.12.1a, 8.12.1b, and 8.12.1c.)

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[69] This is the calculation for residential receptors. A different calculation is used for workplace receptors. Residential receptors were used for the purpose of this analysis, an assumption that increases the hazard index for cancer.

[70] The site is located in an industrialized area and zoned heavy industrial, which allows the installation and operation of large power plant facilities. See the Land Use section of this Decision.

Excavation, grading, and earth-moving activities associated with the construction phase of the project have the potential to adversely affect public health through the creation of airborne dust, material carried offsite through soil erosion, and uncovering buried hazardous substances. Applicant commissioned a Phase I Environmental Site Assessment (ESA) to determine if any contamination exists at the site. The ESA found no hazardous substances or petroleum products at the site that would cause potential adverse impacts to soil or groundwater. (Ex 20, p. 29.) Condition **Waste-4** requires DEC to suspend excavation and take appropriate action if any contamination is discovered at the site or along the linear facilities routes.

During project operation, TACs will be found in combustion emissions from the gas turbines and boiler, as well as in cooling tower drift or mist from the use of disinfected tertiary recycled water (DTRW) in the cooling tower. (Ex. 20, p. 30.) Applicant used the California Air Toxics Emission Factor (CATEF) database published by CARB to determine exposure levels and risks. (*Ibid*.) The CATEF database lists those pollutants typically emitted during power plant operations.[71] Applicant estimated TAC emissions associated with combustion of natural gas by using emission factors approved by BAAQMD and EPA. (Ex. 2, / 8.6.2.2.) Concentrations of these pollutants were estimated using dispersion modeling. This technique provided both short-term and long-term average concentrations for use in the screening level risk assessment, and accounted for site specific terrain and meteorological conditions. (*Ibid*.)

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[71] These substances are listed in Staff s Public Health Tables 1 and 2 (Ex. 20, p 31.) Combustion emissions include: acetaldehyde, acrolein, ammonia, benzene, 1,3-butadiene, formaldehyde, napthalene, PAHs, propylene oxide, toluene, and xylene. Cooling tower emissions include:

3. Results of the Health Risk Assessment

Staff testimony indicates that the screening level risk assessment is designed to overestimate public health impacts by assuming worst-case conditions that would lead to the highest possible risks from project emissions. (Ex. 20, p. 24.) According to both Staff and Applicant, the actual risks to public health from project emissions will be much lower than the assessment results. (*Ibid.*; 11/18 RT 218.)

The risk assessment addresses three categories of health impacts: acute (short-term health effects), chronic (long-term) noncancer effects, and cancer risk. (Ex. 20, p. 24.) Acute health effects result from short-term (1-hour) exposure to relatively high concentrations of pollutants, which results in eye, skin, and respiratory tract irritation. Chronic health effects, such as emphysema or heart disease, may result from long-term exposure to lower concentrations of pollutants. (*Ibid.*)

The analysis of potential acute and chronic effects compares the maximum project contaminant levels to reference exposure levels (REL).[72] Health risk is measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. A total hazard index of less than 1.0 is considered an insignificant health risk.

The screening analysis indicated that the maximum hazard index for acute non-cancer effects from the project is located 2.5 miles southwest of the proposed site and is calculated at 0.058. The maximum hazard index for chronic non-cancer effects is located four miles southeast of the proposed site and is calculated at 0.035. (Ex. 20, p. 34.) Based on these results, which fall below the

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arsenic, beryllium, cadmium, hex chromium, copper, lead, manganese, mercury, selenium, silica, sodium hydroxide, sulfate, and zinc. (See also, Mr. Lowe s testimony at 11/18 RT 225.)

[72] Safe reference exposure levels are listed in Air Toxic Hot Spot Program Risk Assessment Guidelines. These health based standards are designed to protect the most sensitive receptors, including young children, the elderly, and those with existing respiratory disease. (Ex. 2, Table 8.6-2; 11/18 RT 258.)

significance level of 1.0, Applicant concluded that project emissions would not result in any chronic or acute non-cancer related health impacts even to the most sensitive individuals at the maximum point of impact. (11/18 RT 214-215.) According to Staff, this level of insignificance is considered a *de minimis* impact.[73] (11/18 RT 242.)

To assess potential carcinogenic effect, the analysis assumed *daily* exposure to a hypothetical individual over a 70-year lifetime to the maximum pollutant concentrations at the location of maximum impact.[74] (11/18 RT 215-216.) Staff and Applicant agreed that using these worst-case screening assumptions means that actual cancer risks are likely to be considerably lower than those estimated. (Ex. 20, p. 24.)

Applicant s risk assessment indicated that the project s maximum point of exposure is just over four miles southeast of the site where the hazard risk for cancer is 0.38 in one million. This calculation is considerably lower than the significance level of one-in-a-million (1:1,000,000).[75] (11/18 RT 213; Ex. 20, p. 35.) Testimony from both Applicant and Staff indicates that a risk of less than one-in-a-million constitutes a *de minimis* risk. (Ex. 20, pp. 34-35; 11/18 RT 214; 247.)

4. Cooling Tower Drift

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[73] See, CEQA Guidelines at Title 14, California Code of Regulations, section 15064(i)(4).

[74] The assumption of a maximally exposed individual (MEI) is very conservative since no actual person is likely to spend 24 hours a day, 365 days a year for 70 years at the exact point of highest toxicity-weighted air concentration. According to Applicant, the greatest true exposure is likely to be significantly lower than that calculated using the MEI assumption. (Ex. 1, p. 7.)

[75] Staff asserted that a significance threshold of 1:1.000,000 is a relatively stringent level. (Ex. 20, p. 26.) For comparison, the Proposition 65 threshold of significance is 1:100,000, requiring impacts to be 10 times as high for an impact to be considered significant. (Ex. 63, p. 4.5-12.) Likewise, in the context of food additive risk assessment, the federal Food and Drug Administration has defined significance at 1:100,000 and further declared that a cancer hazard of less than 1:1,000,000 is the equivalent of saying that no one is expected to get cancer. (Ex. 20, p. 26.)

TAC emissions from the cooling tower originate from contaminants in the cooling source water that are contained in liquid water droplets emitted as cooling tower drift. (Ex. 20, p. 30.) See footnote 69, *supra*. In addition to inorganic substances, wastewater contains various levels of pathogenic organisms, such as viruses and bacteria, that could also be emitted in cooling tower drift at levels potentially affecting public health. (*Ibid*.)

The California Department of Health Services (DHS) is currently promulgating regulations that require recycled water used in cooling towers to be tertiary treated recycled water (DTRW).[76] These regulations specify the degree of disinfection required, as well as the final allowable concentrations of pathogens, which must be reduced by 99.999 percent. (Ex. 20, p. 32.) The recycled water from DDSD will be filtered and treated with sodium hypochlorite and chlorine to ensure satisfactory disinfection. (*Ibid*.) Additionally, information from a continuous online turbidity monitor will provide real-time monitoring data and provide alarm notification if the turbidity level is exceeded. (*Ibid*.)

DEC will use high efficiency drift eliminators to limit the amount of drift loss to approximately 0.0006 percent of the circulating water rate, resulting in a drift rate of about 1.2 gallons per minute. (Ex. 20, p. 32.) Due to the high efficiency of the drift eliminator (superior by about two orders of magnitude than the ones considered by DHS), Staff expects the actual risk of illness to be much lower than the 1:10,000 significance level for the probability of infection. (*Ibid.*)

5. Cumulative Impacts

Despite finding that cancer and non-cancer risks are *de minimis*, Staff nevertheless assessed the project s potential cumulative impacts to public health by looking simultaneously at the project s maximum impacts, those of the

[76] Title 22, Cal. Code of Regulations,/60301.100 et seq.

recently licensed PDEF power plant, and those of the existing Dow Chemical plant. (Ex. 20, p. 35.)

The screening analysis indicated that the points of maximum impact of the three projects are broadly dispersed. The points of maximum impact vary with each facility because of different stack heights, different exhaust velocities, and the vagaries of modeled weather. (11/18 RT 255.) The modeled point of maximum impact of PDEF is approximately 5.5 miles north of DEC s project site. (Ex. 20, p. 35.) The point of maximum impact of the Dow facility, which has been modeled by BAAQMD, occurs in Antioch four miles southwest of the impact location for PDEF and considerably north of the DEC s maximum point of impact. (*Ibid*.) Staff, therefore, found that none of the maximum points of impact are even close to each other. (*Ibid.*) Staff s witness, Mr. Ringer, testified that it would make no sense to add the risk factors given the disparate points of maximum impact.[77] (11/18 RT 254.) Mr. Ringer noted that similar to DEC, the PDEF facility also represents a *de minimis* impact in the screening context even at its point of maximum impact. (*Ibid*.)

6. Intervenors

Ms. Lagana for CAP-IT (Community Abatement of Pollution and Industrial Toxins) presented testimony about the October 19, 1999, Bucket Results that are discussed in Exhibit 71. CAP-IT s Bucket Brigade captured air samples of VOCs and sulfides at three locations in Pittsburg and Bay Point and sent the samples to the Performance Analytic Lab in Simi Valley for review by Communities for a Better Environment. (11/18 RT 267-268.)

[77] According to Mr. Ringer, BAAQMD has determined that cumulative risks are likely to occur only when multiple facilities with substantial low-level emissions are immediately adjacent to, or very close to, one another. (Ex. 20, p. 36.)

The results showed somewhat elevated levels for specified TACs, but included a caveat that the results were preliminary because the data did not account for background levels detected at regulatory monitoring stations around the Bay Area for each chemical. (11/18/ RT 273.) The report also noted that the sampling results are not levels shown in the standard literature to cause acute health problems although some were above expected background levels.[78] (Ex. 71, p. 2.) Upon cross-examination by Applicant, Ms. Lagana explained there was also possible contamination from the Federal Express box in which the samples were placed for delivery. (*Id.,* at p. 274.) The report, however, suggested that many chemicals present together may cause health impacts at lower levels than one chemical by itself. (Ex. 71, p. 2.)

Mr. Hawkins for Community Health First (CHF) is particularly concerned about the potential cumulative effects or total body burden caused by exposure to a mixture of TACs in the environment. (Ex. 67, p. 9.) Mr. Hawkins provided citations to, and excerpts from, several articles discussing potential health effects from specific TACs that will be emitted during project operations. (Ex. 68.) Mr. Hawkins indicated that he suffers from chemical poisoning and is highly susceptible to potential xenobiotic effects from air pollution. He opposes the project because, he believes, it will increase the chemical soup in the Pittsburg area. (CHF s 12/3 Brief.) Essentially, Mr. Hawkins does not agree with the methodologies used by the regulatory agencies to determine potential health effects from project emissions. (*Ibid*.)

CHF s representative, Mr. MacDonald, cross-examined Staff s witness regarding the dispersion of toxins and air pollution coming out of DEC and dropping onto Pittsburg. (11/18 RT 262.) Mr. Ringer reiterated that project emissions do not just go up and come straight down, rather, under worst-case weather

[78] In response to cross-examination by Mr. Boyd for Californians for Renewable Energy (CRE) regarding some elevated levels of chemicals presented in the Bucket Report, Applicant s witness, Mr. Lowe, testified that the estimated worst-case chemical concentrations emitted by DEC are thousands of times lower. (11/18 RT 229.)

conditions, which result in the highest impacts at any location, the maximum risk location is 5.5 miles south of the site. (11/18 RT 262:18-22.)

COMMISSION DISCUSSION

The evidence has clearly established that potential health effects from project TAC emissions are *de minimus.* This conclusion is essentially uncontroverted by credible evidence. Moreover, the health risk assessment performed by Applicant was reviewed by BAAQMD s Toxics Evaluation Section and found to comply with current accepted practice as well as Air District rules and procedures. (Ex. 58, p. 22.) However, we will address the concerns of Intervenors Californians for Renewable Energy (CRE) and Community Health First (CHF) since they were very involved in the evidentiary hearing on this topic.

Intervenors CRE and CHF ask the Commission to disregard the health risk assessment methodology developed and approved by local, state, and federal regulatory agencies because they believe the addition of another power plant facility in Pittsburg will degrade the environment. Mr. Hawkins, in particular, has filed several passionate pleas, demanding that the Commission halt the proceedings because of his preexisting personal disability from exposure to toxic chemicals. According to Mr. Hawkins, his participation as an Intervenor in this proceeding could be viewed as David against Goliath , i.e., one citizen against the big power plant company and the governmental agencies involved in this case. Notwithstanding Mr. Hawkins views, the governmental entities that reviewed the data in this case are mandated to protect public health by using appropriate scientific protocol. Employing that protocol establishes that DEC will not create or contribute to adverse public health impacts.

Although Intervenors CRE and CHF challenged the data and the methodology employed by Applicant and Staff, they did not present any convincing evidence to show that TAC emissions from the DEC project would result in adverse health

effects. The Intervenors focus on the identification and amounts of pollutants produced by the facility was not persuasive in view of the well-established scientific principle and expert testimony that dispersion patterns are more important than merely looking at the amounts of gross emissions. (Mr. Ringer's testimony at 11/18 RT 253.)

The Bucket Report, which was presented by CRE via testimony of Ms. Lagana, did not provide useful evidence because it only measured TAC concentrations at a moment in time at specific locations not related to the locations of maximum impact for DEC. Moreover, the Report itself indicated that the samples could have been contaminated. This flawed data appears in stark contrast to the years of data collected at BAAQMD s monitoring stations. Thus, we were not persuaded by the results of this report.

FINDINGS AND CONCLUSIONS

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

1. Normal operation of the DEC facility 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, which are discussed in the Air Quality section of this Decision, will be mitigated to levels consistent with those allowed under applicable law.

3. Applicant performed a health risk assessment, using well-established scientific protocol, to analyze the potential adverse public health effects of noncriteria pollutants emitted by DEC.

4. Acute and chronic noncancer health risks from project operations will be insignificant.

5. The risk of cancer from project operations will be insignificant.

6. The potential cumulative impact of the DEC project on public health is *de minimus.*

7. Applicant s Phase I Environmental Site Assessment revealed no evidence of soil contamination at the site and no potential for adverse public health effects from construction-related activities.

8. Pathogens that may be found in cooling tower drift will be reduced to levels of insignificance in conformance with applicable law, and the project s state-of-the-art drift eliminator will operate efficiently to control drift.

The Commission, therefore, concludes that the mitigation measures described in the evidence of record ensure that the project will not cause significant adverse impacts to public health from project-related activities. Implementation of the Condition of Certification below will ensure that the project complies with all applicable laws, ordinances, regulations, and standards relating to public health as identified in the pertinent portion of APPENDIX A of this Decision.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall perform a visual inspection of the cooling tower drift eliminators once per calendar year, and repair or replace any drift eliminator components which are broken or missing. Prior to initial operation of the project, the project owner shall have the cooling tower vendor s field representative inspect the cooling tower drift eliminator and certify that the installation was performed in a satisfactory manner. The CPM may, in years 5 and 15 of project operation, require the project owner to perform a source test of the PM_{10} emissions rate from the cooling tower to verify continued compliance with the vendor guaranteed drift rate.

Verification: The project owner shall include the results of the annual inspection of the cooling tower drift eliminators and a description of any repairs performed in the next required compliance report. The initial compliance report will include a copy of the cooling tower vendor s field representative s inspection report of the drift eliminator installation. If the CPM requires a source test as specified in Public Health-1, the project owner shall submit to the CPM for approval a detailed source test procedure 60 days prior to the test. The project owner shall incorporate the CPM s comments, conduct testing, and submit test results to the CPM within 60 days following the tests.

C. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. This analysis reviews whether Applicant s proposed Health and Safety Plans protect the health and safety of workers during project construction and operation, and provide adequate fire protection and emergency service responses. Specifically, the Commission considers whether the measures contained in the Health and Safety Plans will comply with all applicable safety laws, ordinances, regulations, and standards (LORS) designed to protect industrial workers.[79]

SUMMARY OF EVIDENCE

1. Potential Impacts to Worker Safety

During construction and operation, workers may be exposed to chemical spills, hazardous wastes, fires, gases explosions, live electric conductors, confined space entry and egress problems, and heavy equipment failures. (Ex. 20, pp. 39; 44.)

2. Mitigation Measures

To protect workers from job-related injuries and illnesses, Applicant, consistent with state and federal law, must construct and administer comprehensive Health and Safety Plans, which include:

- an injury/illness prevention program;
- a personal protective equipment program;
- an emergency action plan;

[79] DEC s Health and Safety Plans are based on applicable federal law, California s Occupational Health and Safety Administration s (Cal/OSHA) regulations for industrial workers, and local and national safety standards. (CFR, tit. 29; CCR, tit. 8,／1500 et seq.; see Ex. 2, Tables 8.7-5-8.7-8, pp. 8.7-19-8.7-21.) Thus, Health and Safety Plans or Programs refer to measures DEC must take to ensure compliance with applicable LORS during the construction and operation phases of the project. (Ex. 20, pp. 44-48.)

- a fire protection and prevention plan, and other general safety procedures. (Ex. 20, p. 45; Ex. 2, ⁄8.7.2 et seq.)

DEC s Construction and Operation Health and Safety Plans provide for each of the foregoing elements. (Ex. 20, pp. 45-46; Ex. 2,⁄8.7.2 et seq.) Moreover, each plan is subject to Cal/OSHA review and comment following on site reviews 30 days[80] before both the project s construction and operation. (Ex. 20, pp. 45-46.)

a. Fire Protection and Prevention[81]

DEC is located in an industrial area where the Contra Costa Fire Protection District provides fire protection. (Ex. 20, p. 40.) DEC will rely on local fire protection services and onsite fire protection systems.[82] *(Ibid.)*

There are four fire stations located close to the facility and the equipment and response time of each station is shown below. See **Worker Safety** Table 1.[83]

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[80] Testimony at the hearing established that Cal/OSHA had changed its procedures so that it no longer conducts construction Health and Safety compliance reviews before an actual on site visit. (10/5 RT 298, et seq.) The change is reflected in the language appearing in Condition Worker Safety-1 below. In addition, testimony established that Cal/OSHA s new policy regarding construction site visits would not cause any construction-related delays. (10/5 RT 301:189; 303: 3.)

[81] DEC s fire protection and prevention plan is based on Cal/OSHA regulations for industrial workers. (CCR, tit. 8,⁄1500 et seq.; see also, Electrical Safety Orders, CCR, tit. 8,⁄2300 et seq. & Unfired Pressure Vessel Safety Orders, CCR, tit. 8, ⁄⁄450-544, Ex. 20, p. 44-45.)

[82] In addition, in case of a major fire, plant personnel will be able to call upon the Dow Chemical firefighting forces for assistance. (Ex. 2,⁄2.3.2.1.) Moreover, the Applicant will be required to provide final diagrams and plans to the Commission and to the Fire District before DEC s construction and operation to confirm the adequacy of the proposed fire protection measures. (Ex. 20, p. 43.)

[83] Table 1 is replicated from Ex. 20, p. 43.

WORKER SAFETY AND FIRE PROTECTION Table 1
DEC—Fire Station/Fire Protection Capabilities

Station	Response time	Equipment	Number of Firefighters
Station 81 315 W. 10th Street Antioch, CA	5 minutes	1 Type 1 engine 1 Type 6 engine 1 Foam engine	3
Station 83 2717 Gentrytown Drive Antioch, CA	Approximately 5 minutes	1 Type 1 engine 1 Type 4 engine 1 Primary Response Truck Type 1	3
Station 82 2900 Lone Tree Way Antioch, CA	Approximately 5 minutes	1 Type 1 engine 1 Type 4 engine	3
Station 84 200 E. 6th Street Pittsburg, CA	Approximately 5 minutes	1 Type 1 engine 1 power wagon	6

The local fire stations have first responder HazMat capabilities.[84] (Ex. 20, pp. 40-41.) If there is a hazardous materials incident, the fire stations will request assistance from the Contra Costa HazMat Team. (Ex. 20, p. 41.)

Onsite, the project will include a dedicated water supply capable of providing two hours of fire-extinguishing capacity. (Ex. 20, p. 43.) Fire protection systems will be dedicated to the transformers, turbine lubrication oil equipment, and cooling towers. *(Ibid.)* Applicant will install fire alarms, portable fire extinguishers, hose stations, and detection systems throughout the plant. *(Ibid.)*

Applicant asserts that it has provided a comprehensive analysis for the provision of fire protection plans for both construction and operation phases of the project, as the law requires. (Ex. 2,/8.7.) Staff concluded that DEC s incorporation of

[84] At the operations level, first responders are individuals who respond to the site of potential or actual releases of hazardous substances. (Ex. 20, p. 40-41.) As part of the initial response, their role is to protect nearby persons, property, or the environment from the effects of the release. (*Ibid;* 29 CFR,/1910.120.)

these measures in the plant will ensure adequate levels of industrial safety, and comply with applicable LORS. (Ex. 20, p. 49.)

Applicant will provide the final diagrams and plans to the Commission and to the Contra Costa County Fire Protection District before project construction and again before operation. (Ex. 20, p. 46.) See also, Conditions **Worker Safety 1 & 2.**[85] Staff and Applicant agreed that the project would not adversely affect existing fire protection services. (*Id*., p. 43; 10/5 RT 303:3; 304:3.)

b. Injury and Illness Prevention Programs

The primary mitigation measures to protect workers during construction and operation are contained in DEC s Injury and Illness Prevention Programs (IIPPs), which include safety procedures, such as: (1) the required use of personal protective equipment, and (2) safety training requirements. (Ex. 2, / 8.7.3-8.7.3.2 et seq.) DEC will submit expanded Construction and Operations IIPPs to Cal/OSHA for review and comment 30 days before both construction and operation of the project. (Ex. 20, pp. 49-50; Conditions **Worker Safety-1 & 2.)**

At DEC s request, Cal/OSHA will review and provide comments on the IIPP as the result of an onsite consultation. (Ex. 20, p. 45.) During the onsite inspection, Cal/OSHA will (1) complete a physical survey of the site; (2) analyze DEC s work practices; and (3) point out those practices that are likely to result in illness or injury. *(Ibid.)* The onsite consultation will give Cal/OSHA an opportunity to evaluate DEC s IIPP and apply it directly to onsite activity. *(Ibid;* see Conditions **Worker Safety-1 & 2**.)

[85] The fire protection and prevention measures are included in Conditions Worker Safety-1 for construction and Worker Safety- 2 for operation. (Ex. 20, pp. 49-50.)

c. Emergency Action Plan

Applicant s Fire and Prevention and Emergency Action Plans provide for fire and emergency reporting procedures, and evacuation procedures.[86] (Ex. 2,/8.7.2 et seq.)

d. General Safety

In addition to implementing the specific plans listed above, there are other safe work practices applicable to DEC, which would include:

- adequate indoor and exterior lighting;
- no smoking areas where flammable materials are present;
- lock-out/tag-out procedures for dangerous equipment or materials;
- safety precautions for confined spaces entry; and
- hot work controls to prevent serious injuries. (Ex. 20, pp. 46-48; see also Conditions **Worker Safety-1 & 2**.)

COMMISSION DISCUSSION

The evidence was uncontroverted that Applicant s proposed worker health and safety program will conform with Cal/OSHA requirements, and other applicable LORS. Applicant will implement the Conditions of Certification described below to ensure compliance with these laws. (10/5 RT 303:3; 304:3.)

FINDINGS AND CONCLUSIONS

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

[86] In addition, Conditions Worker Safety-1, and Worker Safety-2 require DEC to submit final Construction and Operation Emergency Action Plans to Cal/OSHA for review and comment after an onsite consultation. (Ex. 20, pp. 49-50.)

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.
2. To protect workers from job-related injuries and illnesses, Applicant will implement comprehensive health and safety plans that include an accident/injury prevention program, a personal protective equipment program, an emergency action plan, a fire protection and prevention plan, and other general safety procedures.

3. The project will rely on local fire protection services and onsite fire protection systems, and it may, if needed, call upon the Dow Chemical Plant firefighting forces.

4. There are four fire stations within a five-minute response time to the project site. The local fire stations have first responder HazMat capabilities.

5. The Contra Costa County HazMat response team will provide emergency services in case of a hazardous materials incident.

6. Existing fire and emergency service resources are adequate to meet the needs of the project.

7. The project will not cause adverse impacts to existing fire and emergency service resources.

8. The measures specified in the Conditions of Certification listed below will provide adequate health and safety protection to workers during project construction and operation.

The Commission, therefore, concludes that implementation of the Conditions of Certification will ensure that the project conforms with the applicable laws, ordinances, regulations, and standards on industrial worker safety as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

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

- a construction Injury and Illness Prevention Program
- a construction Fire Protection and Prevention Plan

- a personal Protective Equipment Program

Protocol: The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the Contra Costa County Fire Protection District for review and acceptance.

Verification: No less than 30 days prior to the start of construction, or, a lesser period of time as mutually agreed to by the project owner and the CPM, the project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program and the Personal Protective Equipment Program, with a copy of the cover letter of transmittal of the plan to Cal/OSHA. The project owner shall provide a letter from the Contra Costa County Fire Protection District stating that they have reviewed and accepted the Construction Fire Protection and Prevention Plan.

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

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

Protocol: The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Operation Fire Protection Plan and the Emergency Action Plan shall be submitted to the Contra Costa County Fire Protection District for review and acceptance.

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

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

WORKER SAFETY-3 The project owner shall design and install all exterior lighting to meet the requirements contained in the Condition of Certification **VIS-3** and in accordance with the American National Standards Practice for Industrial Lighting, ANSI/IES-RP-7.

Verification: Within 60 days after construction is completed, the project owner shall submit a statement to the CPM that the illuminance levels contained in ANSI/IES RP-7 were used as a basis for the design and installation of the exterior lighting.

D. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of DEC will have a significant impact on public health and safety resulting from the use, handling, or storage of hazardous materials at the facility. Applicant and Staff proposed several mitigation measures, which are reviewed below.

SUMMARY OF EVIDENCE

1. Potential impacts

Table 8.12-2, appended to the Conditions of Certification, lists the hazardous materials that will be used onsite.[87] According to Staff s witness, the hazardous materials that pose the greatest risk to public health and safety include anhydrous ammonia, sulfuric acid, and natural gas.[88] (10/5 RT 311-312.)

Other hazardous materials stored onsite in smaller quantities such as scale inhibitors, biological growth-control agents, oxygen scavengers, and caustics for pH control do not create the potential for significant off-site impacts. (Ex. 20, p. 67; Ex. 2,/8.12.2.2.1 et seq.)

a. Anhydrous Ammonia

The use of anhydrous ammonia, used to control NO_x emissions from the combustion of natural gas, poses the principal risk of adverse impacts in the event of a major accidental release. (10/5 RT 312; Ex. 20, p. 67.) Anhydrous ammonia is a liquefied gas stored at elevated pressure with a high internal energy. In an accidental release, this pressurized energy would rapidly introduce large quantities of ammonia gas into the ambient air, transporting it off-site in high down-wind concentrations. (Ex. 20, p. 67.)

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[87] This table was originally submitted in the AFC (Ex. 2) and admitted into the record as Exhibit 27. Condition HAZ-1 limits the hazardous materials used onsite to those listed in Table 8.12-2.

[88] See, Section 25532(a)(P) of the California Health and Safety Code.

Staff evaluated the potential impacts associated with exposure to ammonia gas according to exposure levels determined by the U.S. Environmental Protection Agency (EPA). Staff s APPENDIX A, Table 1, replicated at the end of this section, shows the acute ammonia exposure guidelines for different sectors of the population. (Ex. 20, pp. 70, 77-78.) Table 1 indicates that most members of the general population can tolerate an exposure level of 75 parts per million (ppm) for up to 30 minutes. (*Ibid*.) Staff relied on this criterion to evaluate the potential for significant impacts rather than the higher level of 200 ppm deemed acceptable by the EPA. (10/5 RT 317-318.)

Applicant performed an atmospheric dispersion modeling analysis to determine the worst-case scenario in the event of an ammonia gas release. (Ex. 2,／8.12.3; Ex. 9, data responses 26-27.) The modeling results indicate a potential exposure of 200 ppm at the Casa Medanos apartments about 250 meters southeast of the site, as well as potential exposures between 200 and 75 ppm at more distant locations. (Ex. 20, pp. 71-72.)

Applicant, asserted, however, that there is very low probability of the worst-case scenario occurring due to safeguards included in the design of the facility. (Ex. 1, pp. 18-20.) Staff agreed that such release would require the congruence of a release and winds blowing directly toward the Casa Medanos apartments. (Ex. 20, p. 72.) According to Staff, the risk of this event occurring is less than three-in-one-million over the life of the project; and, therefore, Staff believes the likelihood of occurrence is implausible. (10/5 RT 312-313, 315.)

To prevent tank failure, DEC s anhydrous ammonia storage and handling facilities will be equipped with continuous tank level monitors, temperature and pressure monitors and alarms, and excess flow and emergency block valves. (Ex. 2,／8.12.6.2.1.) The storage tank is designed with double walls to contain any release if the primary tank fails. (*Ibid*.) Since the facility will be constructed in accordance with seismic zone 4 standards that require increased tank wall

thickness, the potential for corrosion cracks is also greatly reduced. (Ex. 20, p. 71.) Condition **STRUC-4** in the **Facility Design** section of this Decision ensures compliance with seismic design requirements.

Human error, rather than equipment failure, could result in ammonia gas release during transfer operations. (Ex. 20, p. 72.) According to Staff, implementation of the safety management practices included in DEC s Risk Management Plan (RMP) and Process Safety Management Plan (PSM) will reduce the potential for such accidents to insignificant levels. (*Ibid.*) Condition **HAZ-2** ensures that the RMP and PSM will be implemented.

b. Sulfuric Acid

The sulfuric acid proposed by DEC is diluted by water and used to control scaling in the cooling towers. (Ex. 2,/8.12.6.2.2.) As a result of the dilution, this form of sulfuric acid has such low vapor pressure that an accidental release should not result in any evolution of sulfuric acid into the environment. (Ex. 20, p. 72.)

c. Natural Gas

The project will require large amounts of natural gas, which poses a risk of both fire and explosion. (Ex. 20, p. 72.) The risk of fire and explosion will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices. (*Ibid*.) The National Fire Protection Association (NFPA) Code 85A requires: 1) the use of double block and bleed valves for fast shut-off; 2) automated combustion controls; and 3) burner management systems. These measures will significantly reduce the likelihood of an explosion. Additionally, start-up procedures will require air purging of gas turbines and combustion equipment to prevent build-up of an explosive mixture. (*Ibid*.)

Natural gas will not be stored onsite; rather, it will be continuously delivered via the 5.2-mile gas pipeline described in the **Facility Design** section of this

Decision. (See also, Ex. 12.) Condition **MECH-1** in **Facility Design** ensures that construction and operation of the pipeline will comply with the applicable safety requirements.

2. Mitigation

The typical methods of mitigating accidental releases include the use of non-hazardous or less hazardous materials, use of engineered controls (design), use of administrative controls (safety plans), and emergency response planning (risk management). (Ex. 1, p. 20.) With the exception of using anhydrous ammonia instead of the less hazardous aqueous ammonia, Staff concluded that the project reflects all of these mitigation methods. (Ex. 20, pp. 73-74.)

COMMISSION DISCUSSION

The evidence indicates that the worst-case scenario involving an accidental release of anhydrous ammonia is implausible. Although Staff suggests that aqueous ammonia could be substituted for anhydrous ammonia, the record does not support such a requirement.

FINDINGS AND CONCLUSIONS

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

1. The project will use several hazardous materials during project construction and operation.

2. The hazardous materials that pose the greatest risk to public health and safety include anhydrous ammonia, sulfuric acid, and natural gas.

3. To mitigate against an accidental release of ammonia gas, the project will be designed to seismic zone 4 specifications and include a double-walled storage tank, continuous tank level monitors, temperature and pressure monitors and alarms, and excess flow and emergency block valves.

4. The form of sulfuric acid proposed for use is diluted by water and as a result, has virtually no vapor pressure that would cause adverse impacts from an accidental release.

5. To prevent fires and/or explosions from natural gas, the project will implement the safeguards established by the National Fire Protection Agency such as double block and bleed valves, automated combustion controls, and burner management systems, as well as air purging procedures prior to start-up.

6. Applicant will submit an approved Risk Management Plan and an approved Safety Management Plan prior to delivery of any hazardous materials to the site.

The Commission, therefore, concludes that with implementation of the mitigation measures described in the record and contained in the Conditions of Certification below, the project will not cause significant adverse impacts to public health and safety as the result of handling hazardous materials.

Additinally, with implementation of the Conditions of Certification below, DEC will conform with all applicable laws, ordinances, regulations, and standards relating to hazardous materials management as set forth in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in reportable quantities, as specified in Title 40, Code of Federal Regulations, Part 355, Subpart J, section 355.50, that is not listed by chemical name in **HAZMAT** Table 8.12-12 (appended hereto), unless approved in advance by the CPM.

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

HAZ-2 The project owner shall provide a Risk Management Plan and Process Safety Management Plan to Contra Costa County and the CPM for review and approval at the time the plans are first submitted to the U.S. Environmental

Protection Agency (EPA) and the California Occupational Safety and Health Administration (Cal/OSHA). The project owner shall reflect all recommendations of Contra Costa County and the CPM in the final document. A copy of the final plans, reflecting all comments, shall be provided to Contra Costa County and the CPM once approved by EPA and Cal/OSHA.

Verification: At least 60 days prior to the delivery of anhydrous ammonia to the facility, the project owner shall provide the final approved plans listed above to the CPM.

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APPENDIX A Table 1
Acute Ammonia Exposure Guidelines

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

1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)

*THE (NRC 1979), (WHO 1986), AND HABER S LAW ALL CONCLUDE THAT AVAILABLE DATA CONFIRM THE DIRECT RELATIONSHIP TO INCREASES IN EFFECT WITH BOTH INCREASED EXPOSURE AND INCREASED EXPOSURE DURATION.

**The (NRC 1979) describes a study involving young animals which suggests greater sensitivity to acute exposure in young animals. The (WHO 1986) warns that the young, elderly, asthmatics, those with bronchitis and those that exercise should also be considered at increased risk based on their demonstrated greater susceptibility to other non-specific irritants.

E. WASTE MANAGEMENT

The project will generate hazardous and non-hazardous wastes during construction and operation. This section reviews Applicant s waste management plans to reduce the risks and environmental impacts associated with the handling, storing, and disposing of project-related wastes.

Federal and state laws regulate the management of hazardous waste. Hazardous waste generators must obtain EPA identification numbers, and use only permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters must handle the transfer of hazardous waste to disposal facilities.

SUMMARY OF EVIDENCE

1. Site Excavation

Applicant commissioned a Phase I Environmental Site Assessment (ESA) to determine whether the site, owned by Dow had been contaminated by industrial uses. (Ex. 20, p. 83.) The Phase 1 ESA found no evidence of recognized environmental conditions at the site.[89] (*Ibid.*)

2. Construction

During construction, the primary waste generated will be solid, nonhazardous waste. (Ex. 2,／8.13.2.1.) The project will generate an estimated 220 tons of nonhazardous solid waste during construction, including debris, excess concrete, lumber, scrap metal, insulation, packaging, paper, wood, glass, plastic, and empty non-hazardous chemical containers. These wastes will be segregated for recycling, if practicable. Non-recyclable wastes will be placed in a covered dumpster for transport to a Class III landfill. *(Ibid.)*

[89] Recognized environmental conditions are defined as the presence, or likely presence of any hazardous substances or petroleum products, or a property under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the property or into the ground, groundwater or surface water on the property.

Most of the hazardous waste generated during construction will consist of liquid waste, such as flushing and cleaning fluids, passivating fluids, and solids, and solvents. (Ex. 2, ⁄ 8.13.2.1.3.) Other hazardous wastes that may be generated during construction include waste-oil and grease, paint, spent solvent, welding materials, and cleanup materials from spills of hazardous materials. (Ex. 20, p. 84.) These materials will be collected in hazardous waste accumulation containers near the point of generation. *(Ibid.)* The containers will be moved daily to the construction contractor s 90-day hazardous waste storage area located at the site construction laydown area. (Ex. 2,⁄8 13.2.1.3.) Prior to the expiration of the regulatory 90-day storage period, the waste will be delivered to an authorized hazardous waste management facility. *(Ibid.)*

Wastewater generated during construction will include sanitary waste and may include equipment wash and testing water, and stormwater runoff. (Ex. 2, ⁄ 8.13.2.1.2.) Sanitary waste will be collected in portable, self-contained toilets. *(Ibid.)* Equipment wash water will be contained at specifically designated wash areas and passed through an oil/water separator. *(Ibid.)* Oil-free water from the separator will be discharged to the DDSD wastewater treatment plant via a temporary connection to a nearby DDSD sewer. *(Ibid.)* An oil recycler will collect oil collected in the oil/water separator. *(Ibid.)* Stormwater runoff will be managed in accordance with a stormwater management plan that will be approved by the appropriate agencies prior to the start of construction. *(Ibid.)*

3. Operation

During operation, the primary waste generated will be nonhazardous wastewater. (Ex. 2,⁄8.13.2.2.) There are two separate wastewater collection systems planned for the plant. (Ex. 2,⁄8.13.2.2.1.) The first and primary system collects wastewater from all plant equipment, including the heat recovery system generators (HRSGs), cooling towers, and evaporative coolers, then returns it to the DDSD. *(Ibid.)* The second system collects sanitary wastewater from sinks, toilets, and other sanitary facilities and discharges it to the DDSD. *(Ibid.)*

Hazardous wastes generated during routine project operation include used oil, cleaning solutions, solvents, spent air pollution control catalyst, paint, contaminated cleanup materials, and cooling tower sludge. (Ex. 20, p. 84.) About 500 gallons of hazardous wastewater solvents will be recycled. (Ex. 2,⁄. 8.13.2.2.3.) See, Table 8.13-1. below. [90]

TABLE 8.13-1
Hazardous Wastes Generated at the DEC

Waste	Origin	Composition	Quantity	Classification	Disposal
Lubricating Oil	Gas turbine lubricating oil system	Hydrocarbons	Small amounts from leaks and spills	Hazardous	Cleaned up using Solvent and Rags — Disposed by Certified Oil Recycler
Lubricating Oil Filters	Gas Turbine Lubricating Oil System	Paper, Metal, and Hydrocarbons		Hazardous	Recycled by Certified Oil Recycler
Laboratory Analysis Waste	Water Treatment	Sulfuric Acid	Approximately 500 Gallons per year	Hazardous	Recycled by Certified Oil Recycler
SCR Catalyst Units	SCR Systems v Emission Control	Metal, and Heavy Metals, including Vanadium	Warranty is 3 Years. Use tends to be 3 to 5 years	Hazardous	Recycled by SCR Manufacturer or Disposed In Class I landfill
CO catalyst Units	Auxiliary Boiler emission control systems	Metal, and Heavy Metals, Including Vanadium	3 to 5 Years	Hazardous	Recycled by Manufacturer
Oily Rags	Maintenance wipe down of equipment, etc.	Hydrocarbons, Cloth	Approximately 1000 Rags per yYear	Hazardous	Recycled by Certified Oil recycler
Oil Solvents	Cleanup of small spills	Hydrocarbons	Approximately 300 pounds per year	Hazardous	Recycled or disposed of by Certified Oil Recycler
Cooling tower sludge	Deposited in cooling tower basin by cooling water	Dirt from air, arsenic from water	100 to 200 pounds per year	May be Hazardous but usually not	Class II landfill if nonhazardous; Class I if hazardous

Source: Ex. 20, p. 8.13-5

[90] No hazardous waste will be generated by the electric transmission line, natural gas supply line, water supply and discharge lines to the DDSD, or the electric and steam lines to Dow. (Ex. 2,⁄8.13.2.2.)

In addition, oil, oil solvents, and cooling tower sludge, generated annually, will be transported to licensed petroleum recycling facilities in California. (Ex. 20, p. 84.)[91] Materials that cannot be recycled will be ultimately transferred by a licensed waste transporter to a treatment, storage, and disposal facility, or deposited in a Class I landfill.[92] (Ex. 2,∥8.13.3 & 8.13.3.2.)

In addition, nonhazardous solid wastes accumulated during operation would include trash, office waste, empty containers, broken or used metal and machine parts, used packing materials, used filters and spent demineralizer resin. (Ex. 2, ∕8.13.2.2.2; Ex. 20, p. 110.) These waste materials will be recycled to the extent possible, and the remainder disposed of on a regular basis to a Class III landfill. (Ex. 20, p. 84.) Other nonhazardous wastes will be disposed at a Class II landfill such as the Keller Canyon Landfill in Pittsburg. (Ex. 2,∕8.13.3.1.)

4. Potential Impacts on Waste Disposal Facilities

The quantities of nonhazardous materials generated during construction and operation are insignificant relative to existing landfill disposal capacity. (Ex. 20, p. 85.) See **Waste** Table 8.13-2.[93]

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[91] The selective catalytic reduction catalyst (used for NO_x emissions control) will be returned to the manufacturer at intervals of 3 to 5 years for reclamation or disposal at a Class I facility. (Ex. 2,∕8.13.2.2.3; see Table 8.13-1.)

[92] Hazardous waste generated at a facility may be stored at that facility for more than 90 days. The waste must be transported to a Class I landfill. (Ex. 2,∕8.13.3.2.)

[93] Replicated from Ex. 2,∕8.13.3.1.

Hazardous waste is accepted at three California Class I landfills,[94] all of which have the capacity to receive the project s hazardous waste that is not recycled. (Ex. 20, p. 5.)

TABLE 8.13.2
Waste Disposal Facilities

Landfill/MRF/ Transfer Station	Location	Class	Permitted Capacity	Current Operating Capacity	Remaining Capacity	Estimated Closure Date	Comments
PDI Transfer Station	Loveridge Road, Pittsburg	Transfer Station	1500 tons per day	600 tons per day	N/A	Indefinite	
Concord Recycle Center	Mallard Drive, Concord	Recycle Center (MRF)	Unlimited	1500 tons per day	N/A	Indefinite	
Potrero Hills Landfill	Suison City	III	3400 tons per day	1500 tons per day	18 to 20 years	2016 to 2038	Planning to increase capacity/life 15 to 20 years
Keller Canyon Landfill	Pittsburg	II and III	3500 tons per day	1500 tons per day	60 years	2058	
Altamont Pass Landfill	Near Livermore	II and III	14 million cubic yards	1.6 million cubic yards	9 years	2047 to 2087	Additional 40 to 80 years capacity close to being permitted.

Source: Ex. 20, p. 85.

[94] Kettleman Hills (Kings County); Laidlaw Environmental Service s Lokern facility in Buttonwillow (Kern County), and Laidlaw Environmental Service s Westmoreland facility (Imperial County).

COMMISSION DISCUSSION

The evidence was uncontroverted that hazardous wastes generated by the project will be managed in accordance with applicable law. The parties agreed that, to the extent possible, recyclable hazardous and nonhazardous wastes would be recycled. Consequently, the amount of waste generated by the project will have no significant impact on the available disposal facilities and landfills.

FINDINGS AND CONCLUSIONS

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

1. The project will generate hazardous and non-hazardous wastes during construction and operation.

2. Applicant s Phase I Environmental Site Assessment (ESA) found no evidence of recognized environmental conditions at the site.

3. Excavation activities are unlikely to expose construction workers to hazardous metals or organics in the soil.

4. Under Applicant s waste management plan, the project will recycle hazardous and nonhazardous wastes to the extent possible and in compliance with applicable law.

5. Hazardous wastes that cannot be recycled, will be transported by registered hazardous waste transporters to one of the three California Class I landfills.

6. Nonhazardous wastes that cannot be recycled will be disposed of at nearby Class II or Class III landfills, including Keller Canyon Landfill in Pittsburg.

7. Wastewater will be recycled or returned to the Delta Diablo Sanitation District s Wastewater Treatment Plant.

8. Due to the availability of hazardous and nonhazardous waste disposal facilities, and the relatively inconsequential amount of waste generated by the project, potential impacts to existing facilities will be insignificant.

The Commission, therefore, concludes that implementation of the Conditions of Certification listed below will ensure that the project conforms with all applicable laws, ordinances, regulations, and standards relating to waste management as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

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

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the CPM via the monthly compliance report of its receipt.

WASTE-2 Upon becoming aware of any impending waste management-related enforcement action, the project owner shall notify the CPM of any such enforcement action taken or proposed to be taken against it, or against any waste hauler, disposal facility, or treatment facility operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-3 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CPM a waste management plan, including revisions based on the CPM s comments, for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

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

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

Verification: No less than 60 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation. The project owner shall submit any required revisions within 30 days of notification by the CPM (or mutually agreed

upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-4 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, or other signs, prior to any further construction activity at that location, an environmental professional (as defined by American Society for Testing and Materials practice E 1527-97 Standard Practice for Phase I Environmental Site Assessments) shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner stating the recommended course of action.

If, in the opinion of the environmental professional, significant remediation may be required, the project owner shall contact representatives of the Contra Costa County Health Services Department and Region 2 of the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall notify the CPM in writing within 5 days of any reports filed by the environmental professional, and indicate if any substantive issues have been raised.

VII. ENVIRONMENTAL ASSESSMENT

Under its statutory mandate, the Commission must evaluate the project s potential effect upon the environment. The Commission reviews the specific topics of biological resources, soil and water resources, cultural resources, and paleontologic resources to determine whether project-related activities would result in adverse impacts to the natural and human environment.

A. BIOLOGICAL RESOURCES

The Commission s examination of biological resources considers the potential impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological interest such as unique habitats. This analysis describes the biological resources of the project site and ancillary facilities, evaluates the potential for project related impacts on biological resources, and assesses the adequacy of mitigation measures proposed by the parties.

SUMMARY OF EVIDENCE

In the region surrounding the project site, existing wetlands and undeveloped upland areas in the Sacramento-San Joaquin River Delta (Bay-Delta region)[95] support many plant and animal species listed under state and/or federal Endangered Species Acts. (Ex. 20, p. 269; see Biological Resource Table 8.2-1.)[96]

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[95] The Bay-Delta complex is an important segment of the Pacific Flyway, which provides recreational opportunities for waterfowl sport hunting and other nonconsumptive users. *(Ibid.)* The Delta lies at the convergence of the Sacramento-San Joaquin Rivers, the most upstream portion of the San Francisco Bay. (Ex. 2,/8.2.1.1; see Figure 8.2-1.) Together the San Francisco Bay and the Delta are known as the Bay-Delta. Overall, the Bay-Delta is generally regarded as the most important water body in California. (Ex. 2,/8.2.1.1.) It is used extensively for recreational and commercial purposes, and supports a diverse range of flora and fauna. *(Ibid.)* Water from about 40% of the land in California drains into the Bay-Delta, which comprises most of the State s agricultural and water supplies. *(Ibid.)*

[96] See Ex. 2, Table 8.2-1.

Resident wildlife in the project site and laydown area primarily are common species. (Ex. 20, p. 273.) Many wildlife species tolerant of moderately sized (50-100 acres) disturbed open spaces situated in the midst of highly developed urban surroundings such as those at or around the project site, have been observed during biological surveys conducted by project biologists. (Ex. 20, p. 271.)

Applicant discovered a small seasonal wetland (0.16 acres), containing cysts that could not conclusively be determined to be federally threatened vernal pool fairy shrimp in the construction area.[97] This wetland will be lost due to project development at the site. (11/3 RT 14:12—15:11; Ex. 20, p. 273; Ex. 2,/8.2.3.2.)

Applicant was not able to confirm that the cysts were, in fact, the species of vernal pool fairy shrimp listed as federally threatened. However, to ensure compliance with applicable law in the event that the threatened species are found, Applicant agreed to implement the follow-up mitigation measures.[98] (11/3 RT 15:4-15 & 17:24-19:9.) See Condition **BIO-8 (p)**.

Testimony established that the U.S. Fish and Wildlife Service (USFWS) approved mitigation measures offered by the Applicant for the loss of the vernal pool fairy

[97] The U.S. Army Corps of Engineers has jurisdiction over the wetland and will require DEC to obtain a permit under section 404 of the Clean Water Act (/404 Permit). (10/3 RT 61:5-12; Ex. 20, pp. 271, 72.) In conjunction with a/404 Permit, a California Regional Water Quality Control Board certification is necessary. (Ex. 2,/8.2.3.2.) Moreover, a California Fish and Game Code/ 1600 Streambed Alteration Agreement will also be required. *(Ibid.;* 10/3 RT 57:20-62:18.*)*

[98] Dry season sampling of the cysts did not prove dispositive for vernal pool fairy shrimp, as opposed to versatile fairy shrimp. (10/3 RT 44:6-45:19; Ex. 20, p. 272.) For purposes of impact analysis and mitigation recommendations, however, Applicant was willing to assume the shrimp cysts collected during the dry season vernal pool survey are vernal pool fairy shrimp. *(Ibid.; cf.* 11/3 RT 15:4-15 & 17:24-19:9.*)*

shrimp wetland habitat. (11/3 RT 22/19-23/11; 11/3 RT 61:13-62:10; see Ex. 42, USFWS s November 1, 1999, Biological Opinion on the DEC.)[99]

Staff agrees with the Applicant s proposed mitigation measures and added additional measures in its proposed conditions of certification, to mitigate all of the identified potential environmental impacts to ensure the protection of biological resources. (11/3 RT 15:2-20:17; Ex. 20, p. 275-276; Ex. 2,/8.13.3.1.)

1. Project Site

The Applicant conducted site-specific biological surveys in accordance with CEQA Guidelines, which require surveys to cover: (1) a one-mile radius around the plant site, and (2) a 1,000-foot buffer on either side of the transmission line, access road routes, and gas and water pipelines. (Ex. 20, p. 267; Ex. 2/8.2.1.2; 11/3 RT 14:8-20-17.)

Presently, the land at the proposed power plant and laydown sites offers moderate to low quality habitat for various wildlife species, particularly small burrowing rodents, which are prey species for coyotes and foxes. (Ex. 20, p. 273; Ex. 2,/8.2.3.2; 11/3 RT 14:12—15:11.)

DEC construction will result in the eradication of 20 acres of disturbed annual grassland habitat under the plant footprint.[100] (Ex. 20, p. 270.) Temporary impacts include disturbance to an additional 10 acres of annual grassland to be

[99] An off-site mitigation bank or vernal pool trust fund with the Nature Conservancy will mitigate the loss of the vernal pool fairy shrimp s wetland habitat. (11/3 RT 16:21-17:4.)

[100] Loss of annual grassland habitat and displacement of the wildlife that live there are not considered significant due to the relative abundance of the respective resource in the surrounding area. (Ex. 2,/8.2.2.1.1.)

used as a laydown area during construction of the plant and supporting facilities.[101] *(Ibid.)*

2. Linear Facilities

The linear facilities associated with the project include water supply and discharge lines, steam and condensate return lines, a natural gas supply line, and electric power transmission lines.[102] (11/3 RT 15:11-20:8; Ex. 20, p. 270.)

A 5.2-mile, 20-inch diameter, underground natural gas supply pipeline will be installed to the east, connecting to PG&E s Line 400 in Antioch. (Ex. 20, p. 270; see Figure 1.1-5.)[103] The natural gas pipeline will be constructed primarily within the BN&SF Railroad right-of-way (11/3 RT 15:12-16:6; Ex. 20, p. 303; Ex. 2,／8.2.2.2.1, Figure 8.2-1, and Figures 8.2-2D and 2G.) Sensitive habitats, such as the Dow Wetlands Preserve and Coastal Brackish Marsh, will be avoided by horizontal directional drilling (HDD).[104] One segment of the pipeline that passes south of the Antioch Marina in the BN&SF right-of-way will be buried in a trench

[101] Loss of 20 acres of annual grassland under the DEC footprint and temporary disturbance to 10 acres of forage habitat south of the DEC site will result in indirect impacts to the fully protected California white-tailed kite species and to the California Species of Special Concern northern harrier. (See Table 8.2-1, pp. 5-6.)

[102] See Ex. 2, Figure 1.1-5.

[103] Antioch Dunes National Wildlife Refuge (ADNWR), an USFWS managed restoration habitat for some indigenous plant and animal species, is located approximately three miles east of the DEC site. (11/3 RT 15:24; Ex. 2,／8.2.2.1.1; Figure 8.2-1.) ADNWR s fenceline will border the proposed natural gas pipeline route on the north. *(Ibid.)* Applicant s biologist testified that DEC will provide a biologist onsite, in addition to environmental training for all workers during construction near the ADNWR. (11/3 RT 17:7:12; see also, Ex. 42.)

[104] The Applicant s biologist testified that the gas pipeline s horizontal directional drill method was designed after the discovery of a protected species, the salt marsh harvest mouse, in the Dow Wetlands Preserve. (11/3 RT 15:17-23; Ex. 2, Table 8.2-1, p. 6.) The Applicant has identified potential temporary impacts during construction from soil dust particulates on plants (Antioch Dunes evening primrose and Contra Costa wallflower), invertebrates (Lange s metalmark butterfly, Antioch Dunes anthicid beetle), and a reptile (silvery legless lizard). (See Table 8.2-1.)

about 700 feet long where there is no sensitive habitat.[105] *(Ibid.*; 11/3 RT 45:21-52:12.*)*

Two electric power transmission lines will be constructed. (Ex. 20, p. 270.) The onsite 13.8 kV line to Dow and the 3.3-mile outlet line to the PG&E switchyard will be routed to avoid sensitive species habitat. (Ex. 20, p. 270, see Figure 8.2-2E.)

3. Potential Impacts

a. Stack Emissions

Cooling tower drift impacts on vegetation near the project site are not expected to be significant. (Ex. 20 p. 275.) The Applicant presented an impact assessment, which concluded that non-criteria pollutant concentration in the cooling tower draft to be within the maximum drift radius. *(Ibid.)* About 70 percent of the drift is projected to deposit within 500 feet downwind of the cooling towers. *(Ibid.)* Both direct foliar disposition and soil uptake were evaluated. *(Ibid.)* All constituents in the drift were projected to occur in concentrations well below the maximum annual impact values (MAIVs) against which the likelihood of detrimental effects were compared. *(Ibid.)*

b. Erosion

Soil erosion related to construction activities might impact aquatic biological resources if allowed to enter local waterways, but potential erosion can be mitigated by applying appropriate site specific measures. (Ex. 20, p. 273.) Staff s witness testified that implementation of an approved Erosion Control Plan, as required in Condition **Soil & Water-2** will ensure that aquatic biological resources will not be impacted. *(Ibid.;* 10/3 RT 57-58:8.*)*

[105] Construction of the natural gas pipeline through waters of the U.S. and/or wetlands will require a Section 404 Permit. (11/3 RT 11:21-13:8; Ex. 14.)

c. Cooling Tower Water

Cooling tower blow-down will be returned to the Delta Diablo Sanitation District Facility (DDSD) comingled with other wastewater prior to treatment, and discharged to the New York Slough under DDSD s existing NPDES permit. (Ex. 20, pp. 270, 274.) Cecelia Brown, a biologist from the USFWS s Endangered Species Division, testified that compliance with the discharge limitations established in the NPDES permit would reduce impacts on aquatic species in the slough to insignificant levels. (10/3 RT 22:8-10; 25:13-18; 35:5-11; Ex. 20, p. 274.)

Mr. Hawkins, for Intervenor Community Health First, sought to establish that cooling tower drift of constituents from the effluent used as cooling water might, when intermixed with rainwater, adversely affect biological resources. (10/3 RT 23:12-41:15.) Applicant presented the testimony of Ms. Brown who stated that USFWS conducted its endangered species analysis based upon an independent review of the biological resources information provided by the Applicant. (10/3 RT 34:20-41:15; 35:18-24.) According to Ms. Brown, the results were the following:

> Specifically in this case, based on all of the activities, including construction of the plant, that the project was not likely to adversely affect the salt marsh harvest mouse, the California Clapper Rail, the Delta smelt and its associated critical habitat, the Sacramento spilttail, the Lange s betalmark butterfly, the Antioch Dunes evening primrose and its associated habitat, and the Contra Costa wallflower. (10/3 RT 36:12-23.)
>
> We determined that there was likely an adverse effect to the vernal pool fairy shrimp that the Applicant would be mitigating for at a ratio of three acres for every acre lost from the construction of the plant [and that mitigation was found to be acceptable]. (10/3 RT 36:23-37:6.)

Second, Mr. Hawkins attempted to establish the need for before and after water and soil sampling to determine the rainwater effects, intermixed with plant

emissions, on biological resources. (10/3 RT 39:7-41:17; 52:19-56:19.) However, uncontroverted testimony established that such sampling is not a criteria element used by any regulatory agency to measure project impact on biological resources. (11/3 RT 57:1-19.)

d. Bird Collisions

The potential for bird collisions with three 144-feet tall heat exhaust stacks, and two 60-feet cooling towers may be a significant impact. (Ex. 20, p. 270, 274.)[106] Staff concerns are related to potential impacts on other bird species that may migrate through the area in flocks, such as shore birds or passerines. (Ex. 20, p. 273.)

Staff s concerns are heightened because of the:

(1) fairly large area of only moderately disturbed annual grasslands;

(2) various types of wetland habitats that exist between the project site and the New York Slough to the north; and

(3) relatively low number of structures as tall as the 144-feet tall exhaust stacks. (Ex. 20, p. 273.)

Accordingly, to mitigate the potential for avian mortalities, Staff proposed a 3-year monitoring program to document evidence of collisions and/or electrocutions and to establish a mortality reduction plan, if necessary. (Condition **BIO-7**.)

[106] According to the Applicant, bird collisions with tall stacks occur when the birds are unable to see the stacks during fog and rain or if flushed suddenly from the ground. (Ex. 2,∥8.2.2.1.4; see also ∕ 8.2.2.1; 8.2.2.1.3.) Factors that affect the risk of collision include weather conditions, behavior of the species, and stack location. *(Ibid.)* Because the site and surrounding area is highly industrialized, it is very unlikely that special-status migratory birds such as Aleutian Canada goose, ferruginous hawk, bald eagle and peregrine falcon would use the DEC site or immediate vicinity. *(Ibid.)* If so, they would not be affected by the 144-feet tall exhaust stacks. *(Ibid.)* Staff concedes that bird mortality documentation in the field appears to be associated with relatively tall stacks ranging from 500 to 650 feet. (Ex. 20, p. 273.)

COMMISSION DISCUSSION

There were no controverted issues raised by the parties or members of the public regarding potential impacts to biological resources. Mr. Hawkins, Intervenor for Community Health First, did not present any evidence to rebut expert testimony on the regulatory requirements for biological assessment. The Commission is satisfied that the expert testimony provided by the parties adequately identifies relevant potential impacts. We are persuaded that the proposed mitigation measures are likely to prevent any significant adverse impacts to biological resources. While the project s stacks and transmission lines may result in some bird deaths due to collisions or electrocutions, the evidence of record and the mitigation proposed by Staff demonstrate that the losses will not be significant. With respect to cumulative impacts, the evidence indicates that the construction and operation of DEC will not significantly increase any biological resource impacts associated with existing and foreseeable industrial development in the City of Pittsburg.

FINDINGS AND CONCLUSIONS

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

1. The land at the proposed power plant and laydown site offers moderate to low quality habitat for various wildlife species, particularly small burrowing rodents.

2. The site and laydown areas are in moderately disturbed annual grasslands, which include a small seasonal wetland.

3. The above seasonal wetland was found potentially to have cysts (an intermediate dry-period life stage) of the federally-listed vernal pool fairy shrimp.

4. The annual grassland on the DEC site is a potential habitat for the fully protected California white-tailed kite species and the California Species of Special Concern northern harrier.

5. The above wetland will be eliminated with all of its inhabitants due to project construction.

6. Mitigation of 1.0 acre of upland habitat in addition to the 0.48 acres of wetland habitat will be provided to reduce the significant impact on biological resources that were identified above to a level that is insignificant.

7. Construction of the natural gas pipeline through waters of the U.S. and/or wetlands will require a permit under Section 404 of the Clean Water Act. The U.S. Army Corps of Engineers has jurisdiction over the wetland and requires the project owners to obtain a permit under Section 404 of the Clean Water Act.

8. In conjunction with a Section 404 permit, a California Regional Water Quality Control Board certification, and a California Fish and Game Code Section 1600 Streambed Alteration Agreement are necessary for the project.

9. To the extent practicable, Applicant will avoid riparian and sensitive wetland habitat areas either by traversing existing routes or by employing special construction techniques such as horizontal directional drilling.

10. Wildlife species adapted to urban surroundings will not be impacted by noise from DEC s construction and operation.

11. Criteria and non-criteria air pollutants from project emissions will not cause significant adverse impacts to wildlife or vegetation in the project vicinity.

12. Implementation of an approved Erosion Control Plan, as required by Condition Soil and Water-2, will ensure that aquatic biological resources will not be significantly impacted by possible erosion during construction activities.

13. Compliance with the discharge limitations established in the NPDES permit held by Delta Diablo Sanitation District will reduce impacts on aquatic species in the New York Slough to insignificant levels.

14. There is no evidence that adverse impacts to sensitive biological resources are likely to occur as a result of inorganic constituents in cooling tower drift.

15. Applicant will implement a 3-year monitoring program to document evidence of avian collisions and/or electrocutions and to establish a mortality reduction plan, if necessary.

16. The measures specified in the Conditions of Certification listed below will adequately mitigate DEC s potential adverse effects on biological resources to a level of insignificance.

17. With implementation of the mitigation measures specified below, DEC will conform will all applicable laws, ordinances, regulations, and standards related to biological resources as identified in the pertinent portions of APPENDIX A of this Decision.

The Commission, therefore, concludes that implementation of the Conditions of Certification listed below will ensure that the project conforms with all applicable laws, ordinances, regulations, and standards relating to biological resources as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

Implementation of the mitigation measures described below will reduce the proposed project s potential significant biological impacts to less than significant.

BIO-1 To ensure the likelihood of successful completion of required mitigation:

- the project owner shall designate a qualified biologist to advise it or the project manager on the implementation of these Conditions of Certification, and to supervise or conduct mitigation, monitoring, and other biology compliance efforts.

- construction-site and or ancillary facilities preparation (described as any ground disturbing activity other than allowed geotechnical work) shall not begin until an Energy Commission Compliance Project Manager (CPM) approved designated biologist is available to be on site.

<u>Protocol:</u> The designated biologist must meet the following minimum qualifications:

- a bachelor s degree in biological sciences, zoology, botany, ecology, or a closely related field,

- three years of experience in field biology or current certification of a nationally recognized biological society, such as the Ecological Society of America or The Wildlife Society,
- one year of field experience with resources found in or near the project area, and

- ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resource tasks that must be addressed during project construction and operation.

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

If the approved designated biologist needs to be replaced, the project owner shall obtain approval of a new designated biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No disturbance will be allowed in any designated sensitive area(s) until the CPM approves a new designated biologist and that designated biologist is on site.

Verification: At least 30 days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, the project owner shall submit to the CPM for approval, the name, qualifications, address, and telephone number of the individual selected by the project owner as the designated biologist. If a designated biologist is replaced, the information on the proposed replacement as specified in the condition must be submitted in writing to the CPM.

If the project owner is not in compliance with any aspect of this condition, the CPM will notify the project owner of making this determination within 14 days of becoming aware of the existence of any noncompliance. Until the project owner corrects any identified problem, construction activities will be halted in areas specifically identified by the CPM or designee as appropriate to assure the potential for significant biological impacts is avoided.

For any necessary corrective action taken by the project owner:

- the CPM shall make a determination of success or failure of such action after receipt of notice that corrective action is completed, or

- the CPM shall notify the project owner that coordination with other agencies will require additional time before a determination can be made.

BIO-2 The CPM approved designated biologist shall perform the following duties:

- advise the project owner s supervising construction or operations engineer on the implementation of the biological resource conditions of certification,

- supervise or conduct mitigation, monitoring, and other biological resource compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species, and
- notify the project owner and the CPM of any non-compliance with any condition.

Verification: The designated biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM.

BIO-3 The project owner shall develop and implement a Worker Environmental Awareness Program (WEAP). The WEAP shall inform employees about biological resource sensitivities associated with the project. and shall include

- each of the project employees,

- employees of contractors and subcontractors who work on the project site or related facilities (including any access roads, storage areas, transmission lines, water and gas lines) during construction and operation.

Protocol: The WEAP:

- shall be developed by the designated biologist and consist of an on-site or classroom presentation in which supporting written material is made available to all participants;

- must discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

- must present the reasons for protecting these resources;

- must present the meaning of various temporary and permanent habitat protection measures;

- must identify whom to contact if there are further comments and questions about the material discussed in the program; and,

- shall inform workers of the potential biological resource impact risks associated with all construction and operational activities as is appropriate and emphasize protection of sensitive resources such as the coastal brackish marsh.

The specific program may be administered by a competent individual(s) acceptable to the designated biologist. The administrator and each WEAP participant shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program material.

- the signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation,

- the project shall keep signed statements for active operational personnel on file by for the duration of their employment, and for six months thereafter.

Verification: At least 30 days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, the project owner shall:

- provide copies of the WEAP and all supporting written materials prepared by the designated biologist,

- the name and qualifications of the person(s) administering the program to the CPM for approval.

The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date.

BIO-4 To prevent animals from becoming trapped during excavation or construction of any natural gas pipelines or underground transmission lines, the project owner s safety rules shall provide for all excavations to be covered at the end of the work day, or at other appropriate times if left unattended.

Protocol: The designated biologist shall maintain written records of the activities described above.

Verification: The project owner s supervising construction manager and operating engineer shall state in the Monthly Compliance Report whether this condition is being fully implemented at the various construction sites.

BIO-5 To monitor any bird mortality the project owner shall develop and implement a process to record all avian collisions with exhaust or other stacks on the project as well as the transmission lines over Dowest Slough. If bird mortalities are documented as a result of the monitoring, the project owner shall recommend and, if deemed necessary and acceptable by the CPM, implement mitigation measures to reduce the mortalities. If no significant bird mortalities are

documented within a 3-year period, the bird-monitoring program may be ended with concurrence of the CPM.

Verification: The designated biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. If there are any problems with bird mortalities as identified in the monthly summaries, the CPM will notify the project owner to implement agreed upon mitigation measures within a reasonable time to be determined by the CPM.

BIO-6 To compensate for the loss of foraging habitat, the project owner shall provide 1.0 acre of upland habitat in addition to the 0.48 acres of wetland habitat.

Verification: The designated biologist shall maintain written records of the transactions described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM.

BIO-7 The project owner s supervising construction manager and operating engineer shall act on the advice of the designated biologist to ensure conformance with the biological resource conditions of certification.

Protocol:

- The project owner s supervising construction and operating engineer shall halt, if needed, all construction activities in areas specifically identified by the designated biologist as sensitive to ensure that potential significant biological resource impacts are avoided.

- The designated biologist shall:

    - advise the project owner and the supervising construction and operating engineer when to resume construction, and,

    - advise the CPM if any corrective actions are needed or have been instituted.

Verification: Within two working days of a designated biologist notification of non-compliance with a Biological Resources condition or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition.

For any necessary corrective action taken by the project owner:

- the CPM, within five working days after receipt of notice that corrective action is completed, shall make a determination of success or failure, or

- the CPM shall notify the project owner that coordination with other agencies will require additional time before a determination can be made.

BIO-8 The project owner shall submit to the CPM for review and approval a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) for this project. Site disturbance and project construction shall not commence until the CPM has approved the BRMIMP.

Protocol: The BRMIMP shall:

(a) identify all sensitive biological resources to be impacted and avoided by project construction and operation;

(b) identify all mitigation, monitoring, and compliance conditions included in the Commission s Final Decision;

(c) identify all conditions agreed to in any CDFG Streambed Alteration Agreement;

(d) identify all terms and conditions contained in the U.S. F&WS Biological Opinion

(e) indicate the placement of transmission line towers so that wetland resources will be avoided, or if not avoided, constructed in such a way that impacts will be minimized to the extent practicable.

(f) design new above-ground transmission lines to reduce the risk of electrocution for large birds;

(g) clearly delineate construction area boundaries with stakes, flagging, and/or rope to minimize inadvertent degradation or loss of wetland habitat during construction activities associated with pipelines and transmission lines;

(h) show all locations requiring temporary protection/signs during construction on a map of suitable scale;

(i) indicate duration for each type of monitoring established for mitigation actions and include a description of the monitoring methodologies and frequency;

(j) describe performance standards to be used to help decide if/when proposed mitigation is or is not successful;

(k) identify all remedial measures to be implemented if performance standards are not met;

(l) reduce potential bird collisions with boiler stacks, cooling towers, turbine stacks, and other structures by reducing exterior lighting on all structures to the minimum except for those required for aviation warning, while all other required exterior lighting on structures will be shielded to direct light downward;

(m) reduce soil erosion during construction and operation by applying measures identified in the proposed Soil Resources and Water Resources conditions of certification of the Energy Commission Decision for the project and comply with State Water Resources Control Board/Regional Water Quality Control Board standards;

(n) to the extent practicable, minimize construction activities or access within wetlands or designated buffer areas and cross wetland areas by locating towers at least 100 feet from the existing edges of the wetlands;

(o) provide for having a mitigation monitor who will ensure that the sensitive wetland areas are properly staked or flagged to avoid direct project impacts during construction activities, and have a qualified wetlands biologist monitor all project construction activities that could adversely impact the wetland areas and have corrective measures implemented where appropriate;

(p) provide for habitat compensation of 0.48 acres of wetlands from a USFWS approved mitigation bank for the vernal pool fairy shrimp that inhabit the seasonal wetland in the project site;

(q) provide 1.0 acre of upland habitat suitable for white-tailed kite foraging; and

(r) reduce the potential for animals falling into trenches or other excavated sites by covering them at the end of the workday or if left unattended.

Verification: At least 60 days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, the project owner shall:

- provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine the plan's acceptability within 15 days of receipt of the final plan. After the plan is approved, the project owner

shall notify the CPM five working days before implementing any agreed to modifications to the BRMIMP.

BIO-9 Within 30 days after completion of construction, the project owner shall provide to the CPM for review and approval a written report identifying:

- which items of the BRMIMP have been completed,
- a summary of all modifications to mitigation measures made during the project s construction phase, and
- which condition items are still outstanding.

Verification: The CPM will review the BRMIMP, and, as deemed necessary, ask the project owner to modify and/or clarify the report content and/or format.

If the BRMIMP does not include the monitoring protocol listed above, the CPM will return the plan within 14 days to the project owner for revision. During operation of the project, the CPM or designee will determine via telephone or through visits to the project site, as deemed necessary, whether or not the project owner has complied with this condition.

If the project owner has not complied with any aspect of this condition, the CPM will notify the project owner of making this determination. If the project owner fails to correct any identified problem within a reasonable time, as determined by the CPM, the CPM will initiate the Energy Commission s complaint filing process.

For any necessary corrective action taken by the project owner, the CPM shall make a determination of success or failure. Such action shall be made:

- after receipt of notice that corrective action is completed, or
- the CPM shall notify the project owner that coordination with other agencies will require additional time before a determination can be made.

B. SOIL AND WATER RESOURCES

In this section, the Commission reviews the soil and water resources associated with the project, specifically focusing on the project s potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality. The analysis also considers the potential cumulative impacts to water quality in the project vicinity. To prevent or reduce any potential adverse impacts, several mitigation measures are included in the Conditions of Certification to ensure that the project will comply with all applicable federal, state, and local laws, ordinances, regulations, and standards (LORS).

SUMMARY OF EVIDENCE

1. Soils

The 20-acre site is a non-irrigated, undeveloped parcel that has been mowed, burned, and/or disked on an annual basis by the local fire department. (Ex. 40, p. 1; Ex. 39, p. 3.) The area is topographically flat and slightly above sea level in elevation.[107] Applicant indicated that the erosion hazard ratings of soil mapping at the site and along the linear facilities are rated as none, none to slight, or slight. (Ex. 2,/8.9.1.6; Ex. 40, p. 2.) Applicant found no contaminated soils at the site. (11/3 RT 109.) See the **Public Health** section of this Decision.

Project construction activities will result in soil erosion, generation of dust, soil compaction, and loss of soil productivity.[108] (Ex. 2,/8.9.2.1.) Impacts to soils during project operation will be minimal because operational activities do not involve ground-disturbing activities. (*Ibid*.) Applicant will implement the

[107] The site is not subject to flooding nor will development of the site exacerbate potential flooding in the area. (11/3 RT 109-110; see, the Geology and Facility Design sections of this Decision.)

[108] Applicant indicated that construction and operation of the project will not result in significant loss of land, or change the intensity of lands designated as Farmlands of Statewide Importance. (Ex. 40, p. 2.)

temporary and permanent erosion control and drainage measures described in its draft Erosion Control and Storm Water Management Plan, which identifies best management practices to ensure that sediment and other pollutants are not carried offsite by storm water runoff. (Ex. 34.) Temporary measures include sediment barriers and wetting down unpaved areas to control dust created by heavy vehicles and movement of equipment. (Ex. 2, / 8.9.3.1.) Permanent measures include drainage and infiltration systems, slope stabilization, and revegetation. (*Ibid.*) Condition **Soil & Water-2** requires Applicant to submit a final Erosion Control and Storm Water Management Plan prior to commencement of any ground-moving activities.

Construction of the project will pave over 70 percent of the site s surface, adding approximately 520,000 square feet of impervious ground, significantly increasing storm water runoff rates and volumes from the site. (Ex. 39, p. 11; Ex. 41, p. 2.) Storm water will be collected in a system of underground drains and discharged via a 36-inch diameter pipe to Dowest Slough. (*Ibid*.) Staff s witness, Mr. O Hagan, confirmed that DEC s drainage plan should prevent contaminated storm water runoff or other spills from leaching into the soil. (11/3 RT 110.)

The facility will operate under a General Permit for Discharges of Storm Water Associated with Industrial Activities administered by the San Francisco Regional Water Quality Control Board (SFRWQCB). This permit requires implementation of a Storm Water Pollution Prevention Plan to ensure that hazardous materials will not be transported offsite by storm water. (Ex. 41, p. 4.) All chemicals will be stored, handled, and used in accordance with best management practices.[109]

[109] See, the Hazardous Materials Management section of this Decision.

The first flush associated with storm events will be monitored in accordance with the permit to detect any contamination. (*Ibid.)* Condition **Soil & Water-1** requires Applicant to develop and implement a Storm Water Pollution Prevention Plan.

2. Hydrology

Surface water bodies in the project vicinity are shown in **Soil & Water Resources** Figure 1 below, which is replicated from Staff s testimony. (Ex. 39, p. 9.) New York Slough, located north of the site, is a three-mile long natural channel connected to the San Joaquin River on the east and Suisun Bay on the west. The Slough carries from one-third to one-half the flow of the San Joaquin River to Suisun Bay. (*Id*., p. 4.) Other surface water bodies in the area include Kirker Creek and Dowest Slough. Kirker Creek is a channelized stream located south of the site parallel to the Pittsburg-Antioch Highway. Dowest Slough, a remnant of the former Kirker Creek channel before it was realigned for flood control, is tidally influenced and contains open water areas supporting wetland vegetation. The project site drains into Dowest Slough, which runs north-south on Dow Chemical property to the west of the site and flows into New York Slough. (*Ibid*.; Ex. 41, p. 2.)

Groundwater is found in both shallow and deeper aquifers within the Pittsburg Plain groundwater basin. Groundwater flows south to north discharging to New York Slough near the DEC site. The shallow aquifer at 10 to 20 feet below ground level has been contaminated by industrial uses, while the deeper aquifer at 90 to 140 feet below ground level meets most drinking water standards. (Ex. 41, p. 2.)

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SOIL AND WATER RESOURCES

Figure 1

Source: Ex. 39, p. 9

3. Project Water Supply

There are two water sources available to supply DEC s industrial water demand: recycled wastewater treated by the adjacent Delta Diablo Sanitation District and raw water from the Contra Costa Canal. Potable water from the City of Pittsburg is available for domestic uses.[110] (11/3 RT 75-76.)

a. Recycled Water

The Delta Diablo Sanitation District (DDSD) treats wastewater (effluent) from the Cities of Pittsburg and Antioch. DDSD has an average daily dry weather flow capacity of 16.5 mgd, with an average flow in the last year of 13.2 mgd. (Ex. 39, p. 5.) Currently, the effluent is discharged directly into New York Slough after receiving secondary treatment to remove settable solids and organic compounds. (*Ibid*.)

According to Applicant, approximately 90 to 95 percent of the project s water requirements will be cooling water used to condense steam in the steam turbine s exhaust condenser. Cooling water is circulated through the cooling tower to transfer the heat gained from condensing the steam into the atmosphere through evaporation. (Ex. 2,/8.14.2.1.) DEC will use effluent from DDSD for its cooling water supply. (*Ibid*.)

Cooling water demand will vary with the number of cycles the effluent is circulated through the cooling process. (Ex. 39, p. 5.) DEC proposes to recycle cooling water up to five cycles during normal operating conditions. Applicant s witness testified, however, that water recirculation would be limited to three

[110] Less than one percent of DEC s water supply will be potable water from the City of Pittsburg. (Ex. 41, p. 3.) The city supply is mainly canal water augmented by groundwater. Staff s testimony indicated that supply is more than adequate to meet the 2 gallons per minute (gpm) demand of the project. (11/3 RT 80.) This water will be discharged to the sanitary sewer after use. (Ex. 39, p. 7.)

cycles during the summer months to prevent deposits of salts and chlorides that are more highly concentrated in warmer ambient temperatures. (11/3 RT 111-113.) For five cycles, the project will require about 4.22 mgd of effluent under average operating conditions and about 6.68 mgd under peak conditions. (Ex. 39, p. 6.) For three cycles, average operating conditions will require 5.07 mgd of effluent while under maximum operating conditions the demand for effluent will rise to 8.5 mgd. (*Ibid*.)

To provide recycled water to the project, DDSD must receive a General Water Reuse Permit from SFBRWQCB. This permit allows DDSD to establish and enforce requirements for recycled water uses. (Ex. 39, p. 6.) According to Staff, DDSD had not yet filed its notice of intent for the Reuse Permit at the time of the hearing. (11/3 RT 113-114.) SFBRWQCB indicated, however, that once requirements were met, DDSD could supply recycled water under its existing NPDES permit.[111] (Ex. 39, pp. 6, 8.)

The California Department of Health Services (DHS) is currently promulgating regulations that require recycled water used in cooling tower systems to be disinfected tertiary recycled water.[112] (Ex. 39, p. 5.) Tertiary treatment involves additional coagulation, sedimentation, filtration, and disinfection of the secondary treated effluent. (11/3 RT 97.) DHS must approve the design of the water recycling facility and program to ensure protection of public health. (Ex. 39, p. 6.) Staff testimony confirmed that DDSD s Engineering Report on tertiary treatment has been approved by DHS. (11/3 RT 90-91; Ex. 37: DHS letter approving Engineering Report.)

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[111] NPDES Permit No. CA0038547 California Regional Water Quality Control Board Order No. 93-142. (November 19, 1993.)

[112] Title 22, Cal. Code of Regulations,／60301.100 et seq. The proposed regulations require the use of tertiary treated wastewater in power plant cooling towers to protect public health from cooling tower drift and other potential impacts. See also, the Public Health section of this Decision.

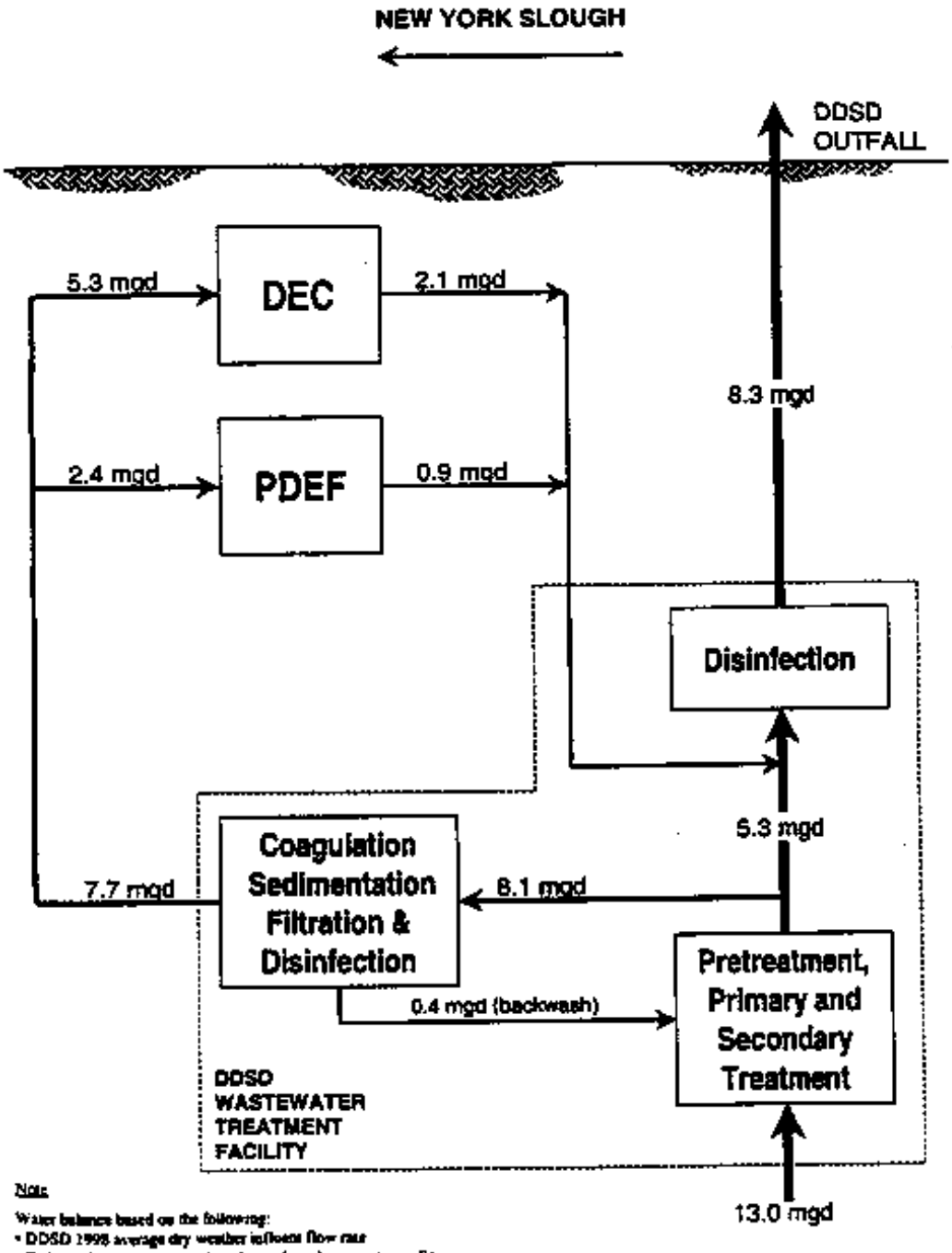
Initially, Applicant proposed construction of tertiary treatment facilities on the project site. (11/3 RT 105-108.) DDSD, however, had already committed to developing a tertiary treatment facility to accommodate PDEF s effluent requirements.[113] (*I b i d.*) Applicant s witness, Mr. Buchanan, testified that negotiations with DDSD are presently directed toward developing one facility to serve both projects. (*Ibid.*) According to Staff, whether the treatment facility is located on the DEC site or on the adjacent DDSD property does not change the environmental analysis. (*Id.*, p. 107-108.) Applicant will file an amendment to the project description once the location for the treatment facility is determined. (*Id.*, p. 106.)

Soil & Water Resources Figure 2 shows a schematic of the estimated flows of tertiary treated effluent for both DEC and PDEF. The combined effluent demand of the two power plants will result in a substantial diversion of DDSD s average wastewater flows. Staff assumed that DEC would present an average demand of 5.0 mgd of effluent, while PDEF would require 3.7 mgd for a total of about 8.7 mgd of DDSD s total effluent flow of 13.5 mgd. (Ex. 39, pp. 12, 14.)

Both projects will also discharge industrial wastewater to DDSD. DEC will return approximately 0.94 mgd to 2.97 mgd of wastewater to DDSD, while PDEF will return approximately 0.9 mgd of wastewater to DDSD. See **Soil & Water Resources** Figure 2. Wastewater from both plants will be returned at the end of the treatment process, beyond the point where effluent is diverted for tertiary treatment, so it will not reduce DDSD s treatment capacity. (Ex. 39, p. 10; 11/3 RT 108-109.)

[113] The Commission s Decision certifying the Pittsburg District Energy Facility (PDEF) requires PDEF to use tertiary treated recycled wastewater from DDSD. (P800-99-013, Docket No. 98-AFC-1.)

Figure 2



Note:

Water balance based on the following:

- DDSD 1998 average dry weather influent flow rate
- Estimated average power plant demands and return stream flow rates at an ambient temperature of 60°F

b. Contra Costa Canal Water

The Contra Costa Water District (CCWD) provides the Cities of Pittsburg and Antioch with 80 percent and 40 percent of their respective water supplies via the 48-mile Contra Costa Canal, which diverts water from the San Joaquin River Delta. The CCWD has a contract with the U.S. Bureau of Reclamation for up to 195,000-acre feet of water per year and typically diverts about 100,000 to 120,000 acre-feet of water per year to supply its customers.[114] (Ex. 39, p. 6.)

DEC will obtain raw canal water for use in the heat recovery steam generators (HRSG), the evaporative cooler, and for other plant service water demands from the CCWD through an existing Dow Chemical connection with the Contra Costa Canal. (Ex. 39, p. 6.) This demand represents approximately 0.22 million gallons per day (mgd) and increases to 0.80 mgd during peak conditions when ambient temperature exceeds 90¡F. Over a year, the project will require approximately 400 acre-feet of canal water. (Ex. 39, p. 7; 11/3 RT 80-81.) Staff s testimony confirmed that project demand would not have any significant impact on the CCWD water supply.[115] (11/3 RT 96.)

DEC has identified Contra Costa Canal water as a backup cooling water source in the event that effluent from DDSD is not available. (Ex. 41, p. 3.) The evidence reveals that CCWD has sufficient capacity to supply the project s cooling water demand based on the surplus water availability created when Gaylord Industries, a large CCWD customer, ceased operations. Gaylord Industries purchased an average of 10,688 acre-feet of water per year, while the maximum amount of water required by DEC would be 5,000 acre-feet per year,

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[114] Other water contracts allow CCWD to divert an additional 50,000-acre feet of water per year. (Ex. 39, p. 6.)

[115] At the hearing on project description, the Committee was concerned that demand for canal water would have the potential to cause adverse impacts on water supply. (10/5 RT 63-65.) The evidence presented herein regarding water supply demonstrates that no impacts will occur.

less than half of the water supply dedicated to Gaylord. (*Ibid.*; see also, Ex. 35: letter from DEC to City of Antioch.)

In response to questioning by Ms. Lagana for CAP-IT, Applicant s witness, Mr. Williams testified that the project s estimated use of 5,000 acre-feet per year of water for backup cooling water is an absolute worst-case maximum.[116] (11/3 RT 79.)

4. Water Quality

DEC will generate wastewater from the cooling tower, evaporative cooler, and HRSG blowdown processes, as well as filtration and reverse osmosis backwash and water from the oil/water separator. Cooling tower blowdown represents most of the wastewater generated by the project. (Ex. 39, p. 7.) Project wastewater that is returned to DDSD will be dechlorinated prior to discharge through the existing DDSD outfall into New York Slough. (Ex. 41, p. 3.)

Project wastewater discharge may adversely affect DDSD s treatment processes or cause DDSD to exceed its own discharge limitations. Applicant applied for an Industrial Discharge Permit under DDSD s existing NPDES permit. (Ex. 39, p. 10.) SFBRWQCB found that the returned cooling water blow-down would have minimal impact on existing permit discharge requirements so that no modification of the NPDES permit should be necessary. (Ex. 38: letter from SFBRWQCB.) Condition **Soil & Water-5** requires DEC to obtain an Industrial Discharge Permit from DDSD prior to discharge of its wastewater to DDSD.

Constituents found in the returned wastewater will include inorganic constituents already present in the effluent. Although a significant amount of wastewater is lost through evaporation, none of the inorganic constituents are lost; rather, they

[116] Condition Soil & Water-4 requires DEC to notify the Commission when canal water is used for more than 14 days as backup cooling water makeup.

are concentrated in the cooling water blowdown. (Ex. 39, pp. 7-8.) To discharge to DDSD, the project must meet the pretreatment limits identified in **Soil & Water Resources** Table 1, below. In addition the project has to meet average chemical oxygen demand, total suspended solids, total dissolved solids, oil and grease, and temperature limitations. (*Ibid.*)

SOIL & WATER RESOURCES Table 1
Industrial Discharge Limitations (mg/L)

Constituents	Estimated Discharge	Pretreatment Limits
Arsenic	0.088	0.53
Cadmium	0.099	0.10
Chromium	0.015	0.50
Copper	0.029	0.50
Lead	0.083	0.50
Mercury	0.003	0.01
Selenium	ND	2.0
Silver	0.018	0.20
Zinc	0.189	1.0

Sources: Ex. 39, p. 10; DEC s Application for Industrial Discharge Permit, dated June 25, 1999, submitted to DDSD.

Staff conducted a mass balance analysis to determine the effect of this concentrated wastewater discharge on DDSD s ability to meet its permit requirements.[117] (Ex. 39, p. 12-13.)

[117] Sophisticated computer analyses were employed to determine dilution and dispersion effects of the wastewater discharge plume. The analyses show that although increased concentrations will occur, no increase in loading (pounds per day) will occur. The decreased flow from DDSD will improve the dilution of discharged water with New York Slough water and will remain above the minimum of 10:1 required by SFBRWQCB to assure compliance with water quality criteria. The modeling shows that the discharge will have no adverse impacts on either CCWD s water intake at Mallard Slough or the City of Antioch s intake located in the San Joaquin River. (Ex. 41, p. 4: Ex. 39, pp. 15-16 and 22 et seq.)

Soil & Water Resources Table 2, below, shows that the combined discharges from PDEF and DEC do not exceed DDSD s existing NPDES permit limitations.[118] Staff and Applicant, therefore, confirmed that the return of wastewater to DDSD would not cause any adverse impacts on water quality in New York Slough. (Ex. 41, p. 4; Ex. 39, p. 13.)

SOIL & WATER RESOURCES Table 2
Delta Diablo Sanitation District Mass Balance Analysis

	Current Daily Average Effluent Limitations [1.] (ug/L)	1996-1998 Effluent Concentration 95th Percentile [2.] (ug/L)	Total Daily Discharge To New York Slough (ug/L)
Copper	78	22.35	40.51
Mercury	24	1.08	1.96
Nickel	71	9.25	16.77
Selenium	50	5.4	9.79

Sources: Ex. 39, p. 15
1. DDSD NPDES Permit (1993)
2. DDSD Monthly Self-Monitoring Reports summarizing annual data (1996-1998)

Based on this data, Staff concluded that there would be no significant unmitigated cumulative impacts associated with the project. (11/3 RT 97-98.)

Intervenors

Mr. Hawkins for Community Health First cross-examined both Applicant s and Staff s witnesses as to whether either party had conducted rainfall studies to determine if organic chemicals potentially absorbed by the rain would go into the soil or water. (11/3 RT 83-86; 101-105.) The witnesses responded that there are no regulatory requirements that would require such rainfall studies. (Ibid.)

Applicant s witness, Mr. Williams, explained that DEC would apply a pretreatment process to canal water by using reverse osmosis and demineralization to remove inorganic and organic chemicals from the water before it is used. (11/3 RT 84.) Staff s witness, Mr. O Hagan indicated that both Staff and Applicant also

[118] See Ex. 38: letter from SFBRWQCB to DDSD stating that returned wastewater discharge from both projects will not significantly impact water quality or require modification of the NPDES permit.

collected quite a bit of water quality data on inorganic metals that are contained in the project s wastewater discharge. (*Id.*, p. 104:8-14.) Neither of the witnesses believed that the rainfall studies sought by Mr. Hawkins were necessary in this case. (*Id.*, pp. 83, 86-87, and 105.)

COMMISSION DISCUSSION

The evidence indicates that project water demand will not cause any impacts to DDSD, CCWD or to the City of Pittsburg s potable water supply. The evidence further demonstrates that the mitigation measures proposed by Applicant and Staff and incorporated in the Conditions of Certification are designed to protect soil and surface water bodies in the vicinity from potential contamination or exposure to pollutants. Intervenor Community Health First did not present evidence to establish the need for rainfall studies. Both Applicant and Staff indicated that there are no regulatory requirements to conduct such studies. The Commission, therefore, finds that the record is consistent with applicable law. Finally, the Commission is persuaded by the comprehensive dilution and dispersion modeling presented by the Applicant and Staff that there will be no cumulative impacts to New York Slough from the combined wastewater discharge of DEC and PDEF.

FINDINGS AND CONCLUSIONS

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

1. Project construction will result in soil erosion, generation of dust, soil compaction, and loss of soil productivity.
2. DEC s draft Erosion Control and Storm Water Management Plan contains best management practices that will mitigate potential impacts from erosion and runoff associated with project construction and operation.
3. DEC will implement a Storm Water Pollution Prevention Plan to ensure that hazardous materials will not be transported offsite by storm water.

4. DEC will use approximately 4.22 mgd to 8.5 mgd of tertiary treated wastewater (effluent) from Delta Diablo Sanitation District (DDSD) for its cooling water process, which represents about 90-95 percent of the project s water demand.
5. DDSD has sufficient capacity to provide effluent to both DEC and to PDEF, which will also use effluent in its industrial processes.
6. To provide effluent to the project, DDSD must obtain a General Water Reuse Permit from the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)
7. The California Department of Health Services has approved DDSD s Engineering Report on tertiary treatment of the effluent, which is required for use in cooling towers to protect public health.
8. DEC will use about 0.22 mgd to 0.80 mgd of raw canal water from the Contra Costa Water District (CCWD) for use in the heat recovery steam generators and for other plant service water demands.
9. DEC will use raw canal water from CCWD as the backup water supply for cooling water in the event that effluent is not available.
10. CCWD has sufficient capacity to meet normal project water demand as well as emergency demand for cooling water.
11. DEC has applied for an Industrial Discharge Permit from DDSD, which ensures that the return flows of project wastewater do not disrupt DDSD s processes or violate its NDPES permit.
12. The cumulative return flows to DDSD of wastewater from both DEC and PDEF will not result in any significant adverse impacts to water quality in the New York Slough.

The Committee, concludes, therefore, that construction and operation of DEC will not cause any significant or cumulative adverse impacts to soil and water resources. Implementation of the Conditions of Certification, listed below, ensures that the project will conform with all applicable laws, ordinances, regulations, and standards related to soil and water resources as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

SOIL & WATER 1 Prior to beginning any clearing, grading, or excavation activities associated with project construction, the project owner will develop and implement a Storm Water Pollution Prevention Plan.

Verification: At least 30 days prior to the start of construction, the project owner will submit to the Energy Commission Compliance Project Manager (CPM) a copy of the Storm Water Pollution Prevention Plan.

SOIL & WATER 2 Prior to the initiation of any earth moving activities, the project owner shall submit an Erosion Control and Storm Water Management Plan for City of Pittsburg Community Development Department review and Energy Commission staff approval. The final plan shall contain all the elements of the draft plan with changes made to address the final design of the project.

Verification: The final Erosion Control and Storm Water Management Plan shall address all comments of the City of Pittsburg Community Development Department and be submitted to the Energy Commission CPM for approval at least 30 days prior to the initiation of any earth moving activities.

SOIL & WATER 3 At least 60 days prior to commercial operation, the project owner must submit a notice of intent to the State Water Resources Control Board to indicate that the project will operate under provisions of the General Industrial Activity Storm Water Permit. As required by the general permit, the project owner will develop and implement a Storm Water Pollution Prevention Plan.

Verification: At least 30 days prior to the start of commercial operation, the project owner will submit to the Energy Commission CPM copies of the Notice of Intent and the Storm Water Pollution Prevention Plan approved by the State Water Resources Control Board.

SOIL & WATER-4 The project owner shall use tertiary treated effluent from the Delta Diablo Wastewater Treatment Facility for cooling water make-up whenever possible. If water from the Contra Costa Canal is used for cooling water make-up for more than 14 days, the project owner shall notify staff in writing of this fact and explain why the backup source is being used.

Verification: The project owner shall notify the Energy Commission CPM in writing if the backup water supply is used for cooling water make-up for more than 14 consecutive days. The notification should explain the cause of the interruption and the anticipated time when treated effluent will again be available.

SOIL & WATER-5 The project owner shall obtain an Industrial Discharge Permit from the Delta Diablo Sanitation District prior to the discharge of the project's wastewater to the Delta Diablo Wastewater Treatment Facility.

Verification: No fewer than 45 days prior to commercial operation, the project owner shall provide the Energy Commission CPM a copy of a valid Industrial Discharge Permit including any pretreatment requirements and/or limitations. The project owner shall notify the Energy Commission CPM in writing of any changes to and/or renewal of the permit.

C. CULTURAL RESOURCES

Cultural resource materials, reflecting the history of human development, may be found almost anywhere in California. This topic analyzes the structural and cultural evidence of human development in the vicinity of the DEC site where cultural resources may be disturbed by project excavation and construction. Undocumented cultural resources may be found on the ground or at varying depths beneath the ground.

SUMMARY OF EVIDENCE

Cultural resources are critical to understanding human culture, history, and heritage. Accordingly, there are federal, state, and local laws that provide for the preservation of cultural resources during project development, construction, and operational activities. Critical to the analysis of such resources are the spatial relationships between an undisturbed cultural resource site and the surface environmental resources and features. These relationships can be pieced together to provide information about human history and the patterns of human adaptation to environmental change.

1. Methodology

Applicant and Staff conducted research to determine whether cultural resources exist at the DEC site or along the linear facilities. Three aspects of cultural resources were addressed in their research: prehistoric archaeologic resources, historic archaeologic resources, and ethnographic resources. (Ex. 20, p. 222.)

Prehistoric archaeologic resources are those materials relating to prehistoric human occupation and use of an area; these resources may include sites and deposits, structures, artifacts, and other traces of prehistoric human behavior. (Ex. 20, p. 215.) In California, the prehistoric period began over 10,000 years ago and extended through the 18th century when the first Euro-American explorers settled in California. (*Ibid*.)

Historic archaeologic resources include those materials usually associated with Euro-American exploration and settlement of an area, and the beginning of a written historical record. (Ex. 20, p. 216.) These resources include archaeological deposits, sites, structures, traveled paths, artifacts, documents, or other evidence of human activity. (*Ibid*.) California law defines historic cultural resources as those greater than 100 years old; according to federal law, such materials are considered historic at 50 years. (*Ibid*.)

Ethnographic resources are important to the heritage of a particular ethnic or cultural group, such as Native Americans, African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, shrines, cemeteries, or structures. (Ex. 20, p. 216.)

The California Native American Heritage Commission (NAHC) maintains records and maps of traditional resource sites located throughout the state. Applicant reviewed the sacred lands file of the NAHC and confirmed that there are no known sacred properties located within the project area.[119] (Ex. 2,/8.3.1.5.4; Ex. 20, p. 225.)

Applicant initially conducted a records search to identify cultural resources within the Area of Potential Effect (APE), a one-mile radius around the plant site and linear facilities.[120] (Ex. 2,/8.3.1.5.1 et seq.) The records identified several historic and prehistoric resources within the APE. (*Ibid*.) Applicant subsequently conducted field surveys along a 150-foot wide corridor (75 feet on each side of the site and linear facilities) and found no surface evidence of cultural resources. (Ex. 2,/8.3.1.5.2; Ex. 20, pp. 222-223.)

[119] Condition CUL-3d provides for Native American monitors, if necessary.

[120] The records search was conducted at the Northwest Information Center of the California Historical Resources Information System (CHRIS). (Ex. 2,/8.3.1.5.1.) The search included a review within one mile of project facilities of all recorded sites, surveys, historical listings, and historical maps. (*Ibid.*)

2. Potential Impacts

Project construction will cause sub-surface ground disturbance that may reveal previously unknown cultural resources. (Ex. 20, p. 228.) Although the site contains no known cultural resources, Staff asserted that the existence of numerous known cultural resources in the vicinity creates the potential for impacts to unknown resources. (*Ibid*.)

The ground surface along the transmission line corridor in the BN&SF Railroad right-of-way is highly disturbed due to industrial development. Except for an isolated find,[121] no evidence of cultural resources was observed by Applicant along the transmission route. (Ex. 2,/8.3.1.5.2.)

The underground portion of the transmission line along the 8th Street corridor is in the vicinity of the New York Landing Historical District[122] but it will not directly or indirectly impact any built feature in that area. (Ex. 20, p. 230.) Staff and Applicant agreed, however, that the proximity of the Historical District and recorded evidence of prehistoric habitation in the Pittsburg area indicate a high potential for discovering buried historic resources when subsurface soils are exposed during construction. (*Ibid*.)

The natural gas pipeline will follow along the BN&SF railroad tracks through open fields, orchards, and margins of industrial facilities. (Ex. 2,/8.3.1.5.2.) Although no known cultural resources occur along this route, Staff believes the potential for impacts to previously unknown cultural resources cannot be evaluated until the subsurface is exposed by trenching. (Ex. 20, p. 230.)

3. Mitigation

To prevent adverse impacts to known or unknown resources, DEC proposed a six-point cultural resource-monitoring program that would be implemented for areas of high

[121] A small tan-colored interior flake of translucent chalcedony was found on the ground about 50 feet north of the BN&SF tracks; however, since no other remains were found, the chalcedony flake was considered an isolated find and left in place. (Ex. 2,/8.3.1.5.2.)

[122] The Historical District was established by City of Pittsburg Ordinance 81-815, and is eligible for listing under the National Historical Preservation Act. (Ex. 2, p. 8.3-17; Ex. 20, pp. 222-223.)

sensitivity. (Ex. 2,／8.3.4) The steps listed below are incorporated and explained more fully in the Conditions of Certification:

- Pre-Construction Assessment and Training
- Construction Monitoring
- Site Recording and Evaluation
- Mitigation Planning
- Curation
- Report of Findings

The parties agreed that a qualified cultural resource specialist would be designated to conduct pre-construction surveys along the final linear routes as well as to monitor for cultural resources throughout the pre-construction and construction periods. (Ex. 20, p. 233.) Condition **CUL-3** requires DEC to develop and implement a Cultural Resource Monitoring and Mitigation Plan. If cultural resources are encountered during construction activities, the totality of mitigation measures contained in the Conditions of Certification will ensure that such resources are protected. (10/5 RT 232.)

FINDINGS AND CONCLUSIONS

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

1. There are several known historic and prehistoric cultural resources in the Pittsburg area but none are identified within the critical Area of Potential Effect.
2. No surface evidence of cultural resources exists at the project site or along the linear facility routes associated with the project.
3. No known Native American sacred properties are located within the project area.
4. There is potential for impacts to unknown cultural resources that may not be discovered until subsurface soils are exposed during excavation and construction.

The Commission, therefore, finds that the mitigation measures contained in the Conditions of Certification below ensure that no significant adverse impacts to cultural resources will occur as a result of project activities.

With implementation of the Conditions of Certification below, DEC will conform with all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall provide the CPM with the name and statement of qualifications for its designated cultural resource specialist who will be responsible for implementation of all cultural resources Conditions of Certification.

Protocol:

a. The statement of qualifications for the designated cultural resource specialist shall include all information needed to demonstrate that the specialist meets the minimum qualifications specified in the US Secretary of Interior Guidelines, as published by the State Office of Historic Preservation (1983). The minimum qualifications include the following:

1) a graduate degree in anthropology, archaeology, California history, cultural resource management, or a comparable field;

2) at least three years of archaeological resource mitigation and field experience in California; and

3) at least one year s experience in each of the following areas:

4) leading archaeological resource field surveys;

5) leading site and artifact mapping, recording, and recovery operations;

6) marshalling and use of equipment necessary for cultural resource recovery and testing;

7) preparing recovered materials for analysis and identification;

8) determining the need for appropriate sampling and/or testing in the field and in the lab;

9) directing the analyses of mapped and recovered artifacts;

10) completing the identification and inventory of recovered cultural resource materials; and

11) preparing appropriate reports to be filed with the receiving curation repository, the SHPO, all appropriate regional archaeological information center(s).

b. The statement of qualifications for the designated cultural resource specialist shall include:

1) a list of specific projects on which the specialist has previously worked;

2) the role and responsibilities of the specialist for each project listed; and

3) the names and phone numbers of contacts familiar with the specialist s work on these referenced projects.

Verification: At least 90 days prior to the start of project construction, the project owner shall submit the name and statement of qualifications of its designated cultural resource specialist to the CPM for review and written approval.

At least 10 days but no more than 30 days prior to the start of construction, the project owner shall confirm in writing to the CPM that the approved designated cultural resource specialist will be available at the start of construction and is prepared to implement the cultural resource Conditions of Certification.

At least 10 days prior to the termination or release of a designated cultural resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated cultural resource specialist.

CUL-2 Prior to the start of project construction, the project owner shall provide the designated cultural resource specialist and the CPM with maps and drawings showing the final project design and site layout, and the final alignment of all linear facilities. The routes for the linear facilities shall be provided on 7.5 minute quad maps, showing:

a. post mile markers (including tic marks for tenths of a mile);

b. final center lines and right-of-way boundaries; and

c. the location of all the various areas where surface disturbance may be associated with project-related access roads, storage yards, laydown sites, pull sites, pump or pressure stations, switchyards, electrical tower or pole footings, and any other project components.

The designated cultural resource specialist may request, and the project owner shall provide, enlargements of portions of the 7.5 minute maps presented as a sequence of strip maps for the linear facility routes. The strip maps would include post mile and tenth of a mile markers and show the detailed locations of proposed access roads, storage or laydown sites, tower or pole footings, and any other areas of disturbance associated with the construction and maintenance of project-related linear facilities. The project owner shall also provide copies of any such enlargements to the CPM at the same time as they are provided to the specialist.

Verification: At least 75 days prior to the start of construction on the project and linear facilities, the project owner shall provide the designated cultural resource specialist and the CPM with final drawings and site layouts for each project facility and maps at appropriate scale(s) for all areas potentially affected by project construction. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the project owner shall also provide a set of these maps to the CPM at the same time that they are provided to the specialist.

CUL-3 Prior to the start of project construction, the designated cultural resources specialist shall prepare, and the project owner shall submit to the CPM for review and written approval, a Cultural Resources Monitoring and Mitigation Plan, identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

The Cultural Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

a. A proposed research design that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the post-construction analysis of recovered data and materials.

b. A discussion of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the pre-construction, construction, and post-construction analysis phases of the project.

c. Identification of the person(s) expected to perform each of the tasks and description of the mitigation team organizational structure and the inter-relationship of team roles and responsibilities. Specification of the qualifications of any professional team members.

d. A discussion of the need for Native American observers or monitors, the procedures to be used to select them, the areas or post-mile sections where they will be needed, and their role and responsibilities.

e. A discussion of measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

f. A discussion of where monitoring of project construction activities is deemed necessary by the designated cultural resource specialist. The specialist will determine the size or extent of the areas where monitoring is to occur and will establish the percentage of the time that the monitor(s) will be present. The areas to be monitored shall include the power plant site, the construction laydown area, the natural gas pipeline route, and the 230 kV electric transmission line route.

g. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum that meets the US Secretary of Interior standards and requirements for the curation of cultural resources.

h. A discussion of the availability and the designated specialist s access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

i. Identification of the public institution that has agreed to receive any data and cultural resources recovered during project-related monitoring and mitigation work. Discussion of any requirements, specifications, or funding needed for the materials to be delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least 60 days prior to the start of construction on the project, the project owner shall provide the Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resource specialist, to the CPM for review and written approval.

CUL-4 Prior to the start of project construction, the designated cultural resources specialist shall prepare an employee training program. The project owner shall submit the cultural resources training program to the CPM for review and written approval.

The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training program shall also include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during project activities. The training program shall be presented by the designated cultural resource specialist or qualified individual(s) approved by the CPM and may be combined with other training programs prepared for biological resources, paleontological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 60 days prior to the start of construction on the project, the project owner shall submit to the CPM for review and written approval, the proposed employee training program, the set of reporting procedures, and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction. The project owner shall provide the name and resume of the individual(s) performing the training.

CUL-5 Prior to the start of construction and throughout the project construction period as needed for all new employees, the project owner shall ensure that the designated cultural resource trainer(s) provide(s) the CPM-approved cultural resources training to all project managers, all construction supervisors, and those workers who operate ground disturbing equipment. The project owner shall ensure that the designated trainer provides the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction.

Verification: Within 7 days after the start of construction the project owner shall provide the CPM with documentation that the designated cultural resources trainer(s) has/have provided to all project managers, construction supervisors, and workers hired before the start of construction the CEC-approved cultural resources training and the set of reporting and work curtailment procedures.

In each Monthly Compliance Report after the start of construction the project owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all project managers hired in the month to which the report applies the CPM-approved cultural resources training and the set of reporting and work curtailment procedures.

CUL-6 The designated cultural resource specialist or their delegated monitor shall have the authority to halt or redirect construction if potentially significant previously unknown cultural resource sites or materials are encountered during project-related grading, augering, excavation, and/or trenching.

If such resources are found and the specialist determines that they are not significant, the specialist may allow construction to resume. The project owner shall notify the CPM of the find as set forth in the Verification section.

If such resources are found and the specialist determines that they are or may be significant, the halting or redirection of construction shall remain in effect until:

a. the designated cultural resources specialist has notified the CPM of the find and the work stoppage;

b. the specialist, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and

c. any necessary data recovery and mitigation has been completed.

The designated cultural resources specialist, the project owner, and the CPM shall confer within five working days of the notification of the CPM to determine what, if any, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the designated cultural resource specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: At least 30 days prior to the start of construction, the project owner shall provide the CPM with a letter confirming that the designated cultural resources specialist has the authority to halt construction activities in the vicinity of a cultural resource find.

For any cultural resource encountered that the specialist determines is or may be significant, the project owner shall notify the CPM as soon as possible.

For any cultural resource encountered that the specialist determines is not significant, the project owner shall notify the CPM within 72 hours after the find.

CUL-7 Prior to the start of construction and throughout the project construction period involving ground disturbing activities (including landscaping), on a weekly basis, the project owner shall provide the designated cultural resource specialist with a current schedule of anticipated project activity for the next two months and a map indicating the area(s) where construction activities will occur. The designated cultural resources specialist shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Verification: At least 10 days prior to the start of construction involving ground disturbing activities, and in each monthly compliance report, the project owner shall

provide the CPM with copies of the schedules and maps provided to the designated cultural resource specialist. The project owner shall notify the CPM when all ground disturbing activities, including landscaping, are completed.

CUL-8 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the designated cultural resources specialist or delegated monitor(s) shall keep a daily log of any resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate by tenths of a post mile, where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found.

The designated specialist shall prepare a written weekly summary of the daily logs on the progress or status of cultural resource-related activities.

The designated resource specialist may informally discuss the cultural resource monitoring and mitigation activities with Commission technical staff.

Verification: Throughout the project construction period, the project owner shall ensure that the daily log and weekly summaries are available for periodic audit by the CPM. Upon request by the CPM, the project owner shall provide specified weekly summaries to the CPM.

CUL-9 The designated cultural resource specialist or their delegated monitor shall be present at times the specialist deems appropriate to monitor construction-related ground disturbance, including grading, excavation, trenching, and/or augering in the vicinity of previously recorded archaeological sites, in areas where significant cultural resources have been identified during project construction, and at any other locations specified in the approved monitoring and mitigation plan.

> Protocol: If the designated cultural resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner and the CPM of the changes. The designated cultural resource specialist shall use milepost markers and boundary stakes placed by the project owner to identify areas where monitoring is being reduced or is no longer deemed necessary.

Verification: Throughout the project construction period the project owner shall include in the Monthly Compliance Reports to the CPM copies of the weekly summary reports prepared by the designated cultural resource specialist regarding project-related cultural resource monitoring.

CUL-10 The project owner shall ensure that the designated cultural resource specialist performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resource materials encountered and

collected during pre-construction surveys and during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate research specialists which will ensure the necessary recovery, preparation for analysis, and analysis of cultural resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource site shall be kept confidential and accessible only to qualified cultural resource specialists.

CUL-11 Following completion of data recovery and site mitigation work the project owner shall ensure that the designated cultural resources specialist prepares a proposed scope of work for the Cultural Resources Report. The project owner shall submit the proposed scope of work to the CPM for review and written approval.

Protocol: The proposed scope of work shall include (but not be limited to):

a. discussion of any analysis to be conducted on recovered cultural resource materials;

b. discussion of possible results and findings,

c. proposed research questions which may be answered or raised by analysis of the data recovered from the project; and

d. an estimate of the time needed to complete the analysis of recovered cultural resource materials and prepare the Cultural Resources Report.

Verification: The project owner shall ensure that the designated cultural resources specialist prepares the proposed scope of work within 90 days following completion of the data recovery and site mitigation work. Within 7 days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and written approval.

CUL-12 The project owner shall ensure that the designated cultural resources specialist prepares a Cultural Resources Report. The project owner shall submit the report to the CPM for review and written approval.

Protocol: The Cultural Resources Report shall include (but not be limited to) the following:

a. For all projects:

1) description of pre-project literature search, surveys, and any testing activities;

2) maps of showing areas surveyed or tested;

3) description of any monitoring activities;

4) maps of any areas monitored; and

5) conclusions and recommendations.

b. For projects in which cultural resources were encountered, include the items specified under a and also provide:

1) site and isolate records and maps;

2) description of testing for, and determinations of, significance and potential eligibility; and

3) research questions answered or raised by the data from the project.

c. For projects regarding which cultural resources were recovered, include the items specified under a and b and also provide:

1) descriptions (including drawings and/or photos) of recovered cultural materials;

2) results and findings of any special analyses conducted on recovered cultural resource materials;

3) an inventory list of recovered cultural resource materials; and

4) the name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the designated cultural resources specialist completes the Cultural Resources Report within 90 days following completion of the analysis of the recovered cultural materials. Within 7 days after completion of the report, the project owner shall submit the Cultural Resources Report to the CPM for review and written approval.

CUL-13 The project owner shall submit an original, an original-quality copy, or a computer disc copy of the CPM-approved Cultural Resource Report to the public repository to receive the recovered data and materials for curation, to the State Historic Preservation Officer (SHPO), and to the appropriate regional archaeological information center(s). If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the Cultural Resource Report to be sent to the curating repository, the SHPO, and the regional information center(s) shall include the following (based on the applicable scenario (a, b, or c) set forth in the previous condition):

a. originals or original-quality copies of all text;

b. originals of any topographic maps showing site and resource locations;

c. originals or original-quality copies of drawings of significant or diagnostic cultural resource materials found during pre-construction surveys or during project-related monitoring, data recovery, or mitigation; and

d. photographs of the site(s) and the various cultural resource materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The project owner shall provide the curating repository with a set of negatives for all of the photographs.

Verification: Within 30 days after receiving approval of the Cultural Resources Report, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center(s).

For the life of the project the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM-approved Cultural Resources Report with the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center(s).

CUL-14 Following the filing of the CPM-approved Cultural Resource Report with the appropriate entities, the project owner shall ensure that all cultural resource materials, maps and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all recovered cultural resource materials are delivered for curation within 30 days after providing the CPM-approved Cultural Resource Report to the public repository receiving the recovered data and materials, to the SHPO, and to the appropriate archaeological information center(s).

For the life of the project the project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

CUL-15 If cut and cover construction rather than directional drilling is used to construct the natural gas pipeline across the Los Medanos Wasteway, the project owner shall consult with the U.S. Bureau of Reclamation and the CPM regarding compliance with Section 106 of the National Historic Preservation Act. The project owner shall implement any cultural resources mitigation measures required by the U.S. Bureau of Reclamation and the CPM as a result of such consultation.

Verification: At least 60 days prior to any ground disturbing activity associated with construction of the portion of the natural gas line across the Los Medanos Wasteway, the project owner shall notify the U.S. Bureau of Reclamation and the CPM regarding the type of construction that will be used. If cut and cover construction rather than directional drilling is used, at least 30 days prior to any ground disturbing activity associated with construction of the portion of the natural gas line across the Los Medanos Wasteway the project owner shall consult with the U.S. Bureau of Reclamation and the CPM. Within 30 days after completing construction of the portion of the natural gas pipeline across the Los Medanos Wasteway the project owner shall provide to the U.S. Bureau of Reclamation and the CPM with written documentation that the project owner has complied with any mitigation measures required as a result of the consultation.

CUL-16 The project owner shall include in the facility closure plan a description regarding facility closure activity s potential to impact cultural resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact cultural resources, then no mitigation measures for cultural resource management are required in the facility closure plan.

Protocol: The closure requirements for cultural resources are to be based upon the Cultural Resources Report and the proposed grading activities for facility closure.

- The project owner shall include a description of closure activities described above in the facility closure plan.

D. GEOLOGY AND PALEONTOLOGICAL RESOURCES

In this section, the Commission reviewed the project s potential impacts to significant geological and paleontological resources and to surface water hydrology during construction and operation. The California Environmental Quality Act (CEQA) directs the lead agency to consider whether a project will cause adverse impacts to a unique geological feature or paleontological resource. (Cal. Code of Regs., tit. 14, ⁄15000 et seq., Appendix G.) CEQA also requires an analysis regarding project impacts that may potentially expose persons or structures to geological hazards. (*Ibid.)*

SUMMARY OF EVIDENCE

The soil overlying most of the project footprint area is highly disturbed and the site slope gradient is shallow. (Ex. 20, p. 288.) Grading and excavation activities during construction will alter the terrain but will not adversely impact the geologic environment. (Ex. 1, p. 57.)

1. Earthquake Potential

The site is located in seismic zone 4, which presents significant ground-shaking hazards. (Ex. 1, p. 57.) Although there are several major faults near the site, the project and linear facilities will be constructed to withstand strong earthquake shaking as specified in the 1998 California Building Code for Seismic Zone 4. (See, **Facility Design** section.) Applicant conducted a site-specific study to determine the potential for shrink-swell and liquefaction behavior in soils beneath the project components and linear facilities. (Ex. 28.) The results of the study will be used in designing the project. (Ex. 1, p. 57) Mitigation measures include the use of pile foundations and avoiding areas that have high liquefaction potential. (Ex. 20, p. 291.)

2. Surface Water Hydrology

Staff s witness found no significant adverse impacts to surface water hydrology. (Ex. 20, p. 290.) The site does not present significant risk for flooding. Any surface drainage from the plant area during storms will be channeled into a storm drain that discharges into the Dowest Slough, which in turn empties into New York Slough. (*Ibid*.) Run-off during a 100-year 24-hour storm should not overwhelm the drainage system or the capacity of the surface water drainage system. (*Ibid*.)

3. Paleontological Resources

While paleontological resources have been identified in the area, none are known to exist within the project footprint or along the linear facility alignments. (Ex. 20, p. 289.) Staff s expert witness testified that the likelihood of a paleontological find at the site is low. (10/5 RT 213.) Conditions **PAL-1** through **PAL-7** will ensure that impacts on paleontological resources are reduced to insignificant levels should they be encountered during project-related activities. These conditions require Applicant to implement a Paleontological Resources Monitoring and Mitigation Plan to minimize impacts on undiscovered fossil materials during ground-disturbing activities. (Ex. 1, pp. 61-63.)

FINDINGS AND CONCLUSIONS

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

1. The project and linear facilities are located in seismic zone 4, which presents significant earthquake hazards.

2. The project will be designed to withstand strong earthquake shaking in accordance with the California Building Code.

3. Portions of the site are subject to shrink-swell and soil liquefaction behavior.

4. Mitigation measures for potential soil liquefaction include the use of pile foundations and avoiding areas that have liquefaction potential.

5. The project will not cause significant adverse impacts to surface water hydrology.

6. There is no evidence of paleontological resources at the project site or along the routes for the linear facilities.

7. To prevent impacts to unknown sensitive paleontological resources, Applicant will implement a Paleontological Resources Monitoring and Mitigation Plan.

The Commission, therefore, concludes that implementation of the Conditions of Certification below, will not cause adverse impacts to either surface water hydrology, geological or paleontological resources, or expose the public to geological hazards.

Additionally, with implementation of the Conditions of Certification, the project will conform with all applicable laws, ordinances, regulations, and standards relating to geology and paleontological resources as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

GEO-1 Prior to the start of construction (defined as any construction-related vegetation, ground clearance, ground disturbance and preparation, and site excavation activities), the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the CPM (the functions of the engineering geologist can be performed by the responsible geotechnical engineer, if that person has the appropriate California license).

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit to the CPM for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of

its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual(s) to the CPM. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4 Engineered Grading Requirement, and Section 3318.1—Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.

2. Monitor geologic conditions during construction.

3. Prepare the Final Engineering Geology Report.

   The Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3309.3 Grading Designation, shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy, for the intended use, of the site as affected by geologic factors.

   The Final Engineering Geology Report to be completed after completion of grading, as required by the 1998 CBC Appendix Chapter 33, Section 3318.1, shall contain the following: A final description of the geology of the site and any new information disclosed during grading; and the effect of same on recommendations incorporated in the approved grading plan. The engineering geologist shall submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications. (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3318 Completion of Work, to the CPM and the CBO.

PAL-1 Prior to the start of any project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall ensure that the designated paleontological resource specialist approved by the CPM is available for field activities and prepared to implement the conditions of certification.

The designated paleontological resources specialist shall be responsible for implementing all the paleontological conditions of certification and for using qualified personnel to assist in this work.

The project owner shall provide the CPM with the name and statement of qualifications for the designated paleontological resource specialist.

The statement of qualifications for the designated paleontological resources specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three years of paleontological resource mitigation and field experience in California, including at least one year s experience leading paleontological resource mitigation and field activities.

The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist s work on these referenced projects.

If the CPM determines that the qualifications of the proposed paleontological resource specialist are not in concert with the above requirements, the project owner shall submit another individual s name and qualifications for consideration.

If the approved, designated paleontological resource specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resource specialist by submitting the name and qualifications of the proposed replacement to the CPM, at least ten (10) days prior to the termination or release of the preceding designated paleontological resource specialist.

Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: At least 90 days (or a lesser number of days mutually agreed to by the project owner and CPM) prior to the start of construction, the project owner shall submit the name and resume and the availability for its designated paleontological resource specialist, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontological resource specialist.

At least 10 days prior to the termination or release of a designated paleontological resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resource specialist. Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to the start of project construction, the designated paleontological resource specialist shall prepare a Paleontological Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner s designated paleontological resource specialist shall be available to implement the Monitoring and Mitigation Plan, as needed, throughout project construction.

Protocol: In addition to the project owner s adoption of the guidelines of the Society of Vertebrate Paleontologists, as modified in the Application for Certification for the DEC, dated December 1998, the Paleontological Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

- A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging, or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;

- Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;

- Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;

- An explanation that the designated paleontological resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;

- A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare,

remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

- Inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and

- Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any 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.

Verification: At least 60 days (or a lesser number of days mutually agreed to by the project owner and CPM) prior to the start of construction on the project, the project owner shall provide the CPM with a copy of the Monitoring and Mitigation Plan prepared by the designated paleontological resource specialist for review and approval. If the plan is not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes.

PAL-3 Prior to the start of construction, and throughout the project construction period as needed for all new employees that are to operate ground disturbing equipment, the project owner and the designated paleontological resource specialist shall prepare and conduct CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

The paleontological training program shall discuss the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the designated paleontological resource specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 30 days prior to the start of project construction, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and the set of reporting procedures the

workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes, before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-4 The designated paleontological resource specialist shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas where potentially fossil-bearing sediments have been identified. If the designated paleontological resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the designated paleontological resource specialist.

PAL-5 The project owner, through the designated paleontological resource specialist, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the designated paleontological resource specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, identification, and inventory, and preparation for and delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report and shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a Paleontological Resources Report by the designated paleontological resource specialist. The Paleontological Resources Report shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval. Note: If no paleontological resources are found, the project owner is to submit to the CMP a

letter stating that no paleontological resources were found in lieu of preparing a paleontological resources report.

> Protocol: The report shall include (but not be limited to) a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the paleontological resource specialist that project impacts to paleontological resources have been mitigated.

Verification: The project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document. The report is to be prepared by the designated paleontological resource specialist within 90 days following completion of the analysis of the recovered fossil materials.

PAL-7 The project owner shall include in the facility closure plan a description regarding facility closure activity s potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

> Protocol: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

The project owner shall include a description of closure activities described above in the facility closure plan.

VII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant project affect, in differing degrees, the community in which it is located. The effect upon the local area varies from case to case depending upon the nature of the community and the extent of the associated impacts. In the present instance, the technical topic areas discussed in this portion of our Decision are those addressing likely areas of local concern.

A. LAND USE

There is potential for a power plant project and related facilities to be incompatible with existing or planned land uses. This land use analysis focuses on two main issues: 1) the project s consistency with local land use plans, ordinances, and policies; and 2) the project s compatibility with existing and planned land uses.[123]

SUMMARY OF EVIDENCE

The power plant site is located in the City of Pittsburg; the linear facilities are located in the cities of Pittsburg and Antioch and in Contra Costa County. The land use planning documents pertinent to the project include the General Plans and Zoning Ordinances for Pittsburg, Antioch, and Contra Costa County. (Ex. 20, pp. 91-93; Ex. 2, ⁄8.4.4.4.)

[123] DEC was scrutinized in relation to the recently certified Pittsburg District Energy Facility (PDEF). (Ex. 20, pp. 104, 110.) PDEF is a 500-MW power plant located in the City of Pittsburg on a 12-acre site on East Third St. east of Harbor St. (Ex. 20, p. 116.) The two projects electric power transmission lines will coincide in the Eighth St. corridor, and both projects require City of Pittsburg land use stack height variances. (11/13 RT 74:15-19; Ex. 20, p. 104, 116.)

1. The Site

The site will occupy 20 acres of an undeveloped 129.53 acre parcel owned by Dow Chemical Company in the Northeast River planning subarea, where virtually all of Pittsburg s heavy General Industry (IG) uses are located.[124] (10/13 RT 71:1-72:14; Ex. 20, p. 93.) According to the General Plan, the IG classification includes large areas of major industrial manufacturing uses, including the existing operations such as USS-POSCO (formerly U.S. Steel) and Dow Chemical. (10/13 RT 72:15-73:12.)[125]

Staff and Applicant agreed that the project is consistent with the IG designation and would not constitute a change in the current development pattern of the area. (10/13 RT 67:5-69:19; 72:14-73:12.)

Pittsburg s current General Plan was adopted in September 1988, and its goals and policies are applicable to the DEC project. (Ex. 2, / 8.4.4.2.4.) DEC complies with the Pittsburg General Plan Land Use element, Section 2.8 industrial development, which provides as follows:

- Guiding Policy 2.8A: seeks to protect the supply of land suitable for industrial purposes and, in cooperation with the County, actively promote the development of appropriate industrial uses.
- Guiding Policy 2.8B: states Pittsburg s intent to retain existing industry, and allow existing industrial uses to expand, consistent with other General Plan policies.
- Guiding Policy 2.8C: encourages new, clean, employment-intensive industry to locate in Pittsburg.

[124] The exception is Southern Energy s Pittsburg Power Plant, formerly owned by PG&E, located to the west of this area. (Ex. 20, p. 93.)

[125] See Ex. 2, Figure 8.4-1.

- Guiding Policy 2.8D: seeks to protect existing and new residential areas from adverse effects of new industry and, wherever feasible, of existing industry. (Ex. 20, p. 102.)

Regarding Policy 2.8A, consistency is ensured because the project is to be located in within an existing, heavy industrial area (Northeast River), and use of the site for power generation is consistent with the IG land use designation. (Ex. 20, p. 102.) Regarding Policy 2.8B, consistency is ensured because DEC will provide power support to an existing industrial facility, Dow Chemical. *(Ibid.)*

Regarding Policy 2.8C, consistency is ensured because DEC will be a combined-cycle/cogeneration plant, which will burn natural gas using state-of-the-art combustion technology. (Ex. 20, p. 120.) Moreover, the average work force over the 22-month construction period is estimated to be about 186 personnel, with a peak of up to 575 jobs during construction.[126] *(Ibid.)*

In relation to Policy 2.8D, staff has identified a potential adverse visual impact related to residential land use. (Ex. 20, p. 102-03.) The nearest residences to the DEC site are the Casa Medanos Apartments, which are located about 2,300 feet to the southwest. (Ex. 20, p. 110.)[127] Without mitigation, the project would block the residents views to the San Joaquin River.[128] (Ex. 20, p. 110.)

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[126] During operation, DEC expects to employ 24 full-time plant operators and technicians, while providing steam and electricity to Dow Chemical, itself a major City of Pittsburg employer. (Ex. 20, p. 120.)

[127] The Casa Medanos apartments, a former motel converted into a 14-unit residential complex, are the nearest residences to the DEC site. (Ex. 20, p. 96.) They are located about 2,000 feet to the southwest and across the Pittsburg-Antioch Highway within an area zoned Service Commercial. *(Ibid.)*

[128] See **Visual Resources** for a detailed discussion of the visual impacts of the project and measures proposed to mitigate those impacts.

2. Stack Height Variance

The project s heat recovery steam generator stacks, each 144 feet tall, and two auxiliary boiler stacks, each 115 feet tall, exceed the City of Pittsburg zoning IG s maximum 50-feet height limitation.[129] The Pittsburg Municipal Code, however, provides for heights up to a total of 95 feet:

- up to 75 feet when a structure is set back from the property line, and
- an additional 20 feet for a chimney or tower-like structure.[130] (Ex. 20, p. 103-04.)

DEC s stacks still will surpass by 49 and 20 feet, respectively, the 95-foot height maximum.[131] *(Ibid.)*

In order to bring the project into conformance with the Zoning Ordinance, the Applicant applied for a variance in March 1999.[132] (Ex. 20, p. 104.) The City of Pittsburg considered whether the variance should be granted and submitted its recommendation to the Energy Commission in the form of a City Council Resolution.[133] (Ex. 72.) The City determined that the Applicant conforms with the necessary findings for a variance under the Zoning Ordinance as follows:[134]

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[129] The City of Pittsburg Zoning Ordinance (Zoning Ordinance) is found in Title 18 of the Municipal Code. (Ex. 20, p. 92.)

[130] Pittsburg Municipal Code,∥18.54.100 and 18.80.020. (Ex. 20, pp. 103-04.)

[131] The computation applied is (144-95=49) and (115-95=20).

[132] The site is closely located to other industrial uses having acquired variances for ancillary structures to the 95-feet height limitation including the existing Pittsburg Marine Terminal, the Air Liquide Gas Manufacturing Facility, the Pittsburg District Energy Facility. (Ex. 20, p. 104.)

[133] City of Pittsburg Resolution No. 99-9060, November 15, 1999.

[134] Pittsburg Municipal Code,/18.16.050.

- There are special circumstances in that the Applicant s stack heights are required by air quality standards enforced by the Bay Area Quality Management District) such that strict application of the height limitations would deprive DEC of privileges enjoyed by other similarly zoned properties in the vicinity.
- The variance will not constitute a grant of special privilege not generally available to other properties in the vicinity since height limitation variances already exist for adjacent uses.
- The variance will comply with the intent and purpose of the IG zone, which is to provide sites for the full range of manufacturing and industrial uses. (Ex. 72.)

The City Council s Resolution advised the Commission that if the City were the permitting agency, it would issue a variance for the stacks and impose conditions requiring the stacks to be neutral gray in color and have no signage on them. *(Ibid.)* Condition **LAND-8** requires Applicant to comply with the conditions described in the Resolution.

3. Transmission Lines

The proposed overhead 230-kV electric transmission line will connect the DEC to the existing PG&E substation at the Pittsburg Power Plant 3.3 miles to the west. (Ex. 20, p. 96.)[135] Existing land uses adjacent to the overhead portion of this line include IG zoned industrial uses, such as Dow Chemical and USS-POSCO, and undeveloped land. *(Ibid.)*

The proposed overhead to underground transition of the 230-kV electric transmission line will occur before reaching the intersection of Columbia Street

[135] DEC will also include a 0.8-mile 13.8 kV aboveground transmission line to supply Dow Chemical with up to 20 megawatts of power. (Ex. 20, p. 97.) All adjacent land use is IG zoned heavy industry and vacant land. *(Ibid.)* The overhead/underground transmission line and the transition structures are allowable uses in all zoning districts in which they will be sited and are not subject to height limitations. (10/13 RT 73:6-12; Ex. 20, p. 110.) Staff drafted Conditions LAND-2-4 to ensure that DEC complies with the City of Pittsburg s Zoning Ordinance for design review and site plan approval. (10/13 RT 76:22-78:6; Ex. 31.)

and East Santa Fe Avenue. (Ex. 20, p. 96.) It will continue underground for the remainder of its journey to the PG&E substation at the Pittsburg Power Plant. *(Ibid.)*

To transition the 230-kV electric transmission line underground, an overhead/underground transition station will be constructed northeast of the CEMCO industrial building on USS—POSCO property. (Ex. 31; 10/13 RT 76:21-83:22; Ex. 20, pp. 96, 110-11.)[136] This location was selected after the City of Pittsburg objected to the original placement of the proposed transition station as too close to residences in the Central Addition neighborhood.[137] *(Ibid.)*

This underground transmission line will then travel within the BN&SF Railroad right-of-way that lies north of East Santa Fe Avenue.[138] *(Ibid.)* The line will then turn west and travel within the median of Eighth Street.[139] (Ex. 20, p. 96.) Contra County Ordinance No. 87-19 added a Railroad Corridor Combining District overlay on to the existing zoning designations of all railroad rights-of-way owned or occupied by BN&SF. (Ex. 20, p. 108.)[140]

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[136] See Ex. 20, Land Use Figure 5 at p. 112.

[137] In addition to moving the transition station further away from residences, a sound wall to be built by PDEF would provide an additional screening or buffer zone for the Central Addition neighborhood. (10/13 RT 77:9-25; Ex. 20, p. 111; see also, Conditions, Visual Resources.)

[138] The Central Addition residential neighborhood is to the south of East Santa Fe Avenue, and industrial zoned IG land is to the north. (Ex. 20, p. 96.) The electric transmission line will parallel East Santa Fe Avenue for about 1,560 feet before turning northwesterly just past Cedar St. to meet up with East Eighth St. (Ex. 20, p. 96.)

[139] Eighth Street runs along the former Sacramento Northern Railroad right-of-way through the City of Pittsburg s downtown. (Ex. 20, p. 96.) Land uses adjacent to this underground portion of the transmission line include residential and commercial uses. *(Ibid.)* The line will continue along the abandoned railroad right-of-way and enter unincorporated Contra Costa County at a point just west of Beacon Street. Immediately west of the Delta Diablo Sanitation District, the transmission line will turn north to follow a utility easement into the Pittsburg Power Plant. *(Ibid).* The transmission line will traverse Heavy Industrial zoned land in unincorporated Contra Costa County. (Ex. 20, p. 113.)

[140] DEC s electrical transmission line and gas pipeline will utilize railroad rights-of-way within Contra County s jurisdiction and normally subject to the County s procedures for a conditional land use. (10/13 RT 83:21-84:18; Ex. 20, p. 108.) Notwithstanding the Energy Commission s in-

Staff and Applicant concluded that the proposal to locate the electric underground transmission line within the Eighth Street median is a compatible land use even in light of the City of Pittsburg s proposal to convert the median into a linear park. (10/13 RT 73:13-20; Ex. 20, p. 113.)

The Applicant commissioned an electromagnetic fields (EMF) study. See, Transmission Line Safety and Nuisance section of this Decision. The EMF study determined that because the line will be: (1) buried at a depth of six feet, (2) encased in steel pipes,[141] and (3) producing measured EMF levels of approximately 2.0 to 3.0 milligauss (mG), no impact exists to the public health and safety. (Ex. 20, p. 113.) Staff proposed Condition **LAND-5** to ensure that the Applicant, in a joint project with PDEF builds the linear park and that it meets the City of Pittsburg s specifications. (10/13 RT 74:3-7, 75:2-7; Ex. 20, p. 113.)

4. Potential Cumulative Impacts

DEC s underground electric transmission lines will exceed the current 50-foot easement that runs through the 8th Street median.[142] (Ex. 20, p. 116.). To accommodate the resulting underground transmission line encroachment, the City of Pittsburg will condemn a subsurface easement through the Eighth Street corridor to allow for the public use of the corridor by the two electric transmission lines. *(Ibid.)*

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lieu authority, Staff concluded that under the County s seven-point analysis both the transmission line and the gas pipeline would meet the County s established criteria. *(Ibid.)*

[141] Applicant s position is that the structural integrity of the conductor design where the transmission line is encased in seam welded, thick—wall, carbon steel pipes effectively shielding most EMF and electric fields.

[142] PDEF s electric transmission line will also be placed underground in the Eighth St. corridor, but at 50 feet the median is not wide enough to handle the combined space requirements of both DEC and PDEF electric transmission lines. (Ex. 20, p. 116.) As currently proposed by the two applicants, DEC s transmission line will be within the median, and PDEF s line will be located underneath the eastbound lane of Eighth St. *(Ibid.)*

Moreover, the City of Pittsburg has requested that DEC and PDEF coordinate construction of the transmission lines along Eighth Street to allow concurrent installation and decrease traffic disruption. *(Ibid.)* Staff has proposed condition of certification **LAND-7**, which will require that the two projects coordinate activities within the Eighth Street corridor. (10/13 RT 85:10-86:20; Ex 20, p. 116.)[143]

5. Natural Gas Supply Pipeline

Natural gas will be delivered to the DEC through about 5 miles of new pipeline. (Ex. 20, p. 97.) The gas pipeline will not divide an established community because it will travel underground and follow an existing railroad right-of-way through predominately industrial areas of the City of Antioch nearly its entire length.[144] (10/13 RT 74:8-14; Ex. 20, p. 114.)

The gas pipeline is consistent with the relevant City of Antioch and Contra Costa County land use provisions for the following reasons:

- horizontal directional drilling will be employed to avoid sensitive habitats;
- the vast majority of the five mile pipeline is within industrial areas within the City of Antioch;
- residential areas will be avoided to the greatest extent possible; [145]

[143] Counsel for the Applicant noted that the Applicant had recently purchased the PDEF facility in which case the ease of coordination would be apparent. (10/13 RT 86:15-20.)

[144] The gas pipeline will use an existing easement within the BN&SF right-of-way that Dow Chemical owns for an abandoned 4-in. caustic line. (Ex. 20, p. 97.) For added flexibility, DEC has applied to the railroad for a 75-foot pipeline corridor along the right-of-way so that the pipeline may be buried on either side of the railroad tracks. *(Ibid.)* Although the pipeline route is primarily within Planned Industrial (M-1) or Industrial District (M-2) zoned land within the City of Antioch, it will travel through unincorporated Contra Costa County in one location. (Ex. 20, p. 97.) The railroad right-of-way within the County s jurisdiction is subject to a Railroad Corridor Combining District overlay. *(Ibid.)*

[145] Antioch s Zoning Ordinance, Section 9-54.3826(b)(6) and General Plan, Health and Safety Goal-Policy #3. In addition, to conform to Antioch s Zoning Ordinance, Section 9-54.3826(g)(2), Staff has proposed Condition of Certification LAND-4 that would require compliance the

- the gas pipeline is consistent with Contra Costa County General Plan Transportation and Circulation Element Railroad Goal 5-V, which seeks to maintain railroad-rights-of-way as utility corridors;

- the gas pipeline is consistent with Contra Costa County General Plan Safety Element Hazardous Materials Goal 10-1, which seeks to protect the public from hazards associated with the transport of hazardous substances. Because the pipeline travels underground primarily through industrial areas, it conforms with Policy 10-67 (new pipelines should not be routed through centers of populations),[146] and Policy 10-70 (encouraging utilization of underground pipelines for the transport of hazardous materials.) (Ex. 20, pp. 106-109.)

Commission Discussion

The Commission has relied on express City of Pittsburg s findings, contained in Resolution 99-9060 (Nov. 15, 1999), namely, that if the City were the permitting agency, it would issue a variance for the HRSG and auxiliary boiler stacks, and impose conditions requiring the stacks to be neutral gray in color and have no signage on them.

Therefore, the Commission has determined that DEC is eligible to receive a variance in accordance with Section 18.16.050 of the City of Pittsburg Municipal Code. The permitting conditions proposed by the City of Pittsburg regarding stack color and signage are incorporated into our Conditions of Certification. The Commission hereby amends and adopts the Conditions proposed by Staff to ensure that DEC complies with applicable laws, ordinances, regulations, and standards regarding land use requirements.

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provisions for environmental cleanup in case of permanent closure of the facility. (Ex. 20, p. 107.)

[146] The underground, pipeline will skirt residential areas in Antioch and Contra Costa County. In Antioch, a segment will extend east from the Antioch Marina through the Rivertown District, ending near McElheny Road. (Ex. 20, pp. 98; 114.) Existing land uses here include residential. *(Ibid.)* In Contra Costa County, for about 900 feet the pipeline runs behind the northernmost row of houses of a development that borders on the BN&SF right-of-way. *(Ibid.)*

FINDINGS AND CONCLUSIONS

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

1. DEC as proposed would occupy 20 acres of an undeveloped parcel owned by DOW Chemical Company in the Northeast River Subarea, where all of the City of Pttsburg s heavy industrial zoned uses are located.

2. The project is consistent with the City of Pittsburg s General Plan and the heavy industrial zoning designation of the property where DEC is proposed to be sited.

3. The project is compatible with the heavy industrial character of the adjacent land uses, where the project s linear facilities are to be sited.

4. The site does not abut any residential areas.

5. Linear facilities are adequately buffered from residential areas and sensitive habitats by underground placement into existing railroad right-of-ways, and by the application of horizontal directional drilling.

6. A sound wall to be constructed as part of the PDEF project will provide additional screening or a buffer zone between the aboveground/underground transition station (for the 230 kV electric transmission line) and the Central Addition neighborhood.

7. Coexisting DEC and PDEF underground electric transmission lines in the Eighth Street corridor will not conflict with existing or planned residential uses.

8. DEC and PDEF will coordinate construction-related activities within the Eighth Street corridor.

9. The overhead/underground transmission line and the transition structures are allowable uses in all zoning districts in which they will be sited.

10. The electric transmission line proposed routing will not disrupt or divide the physical arrangement of an established community.

11. The electric transmission line will generally follow existing easements in industrial areas, and the portion traversing a residential area will be located underground.

12. DEC will comply with Contra Costa County s land use zoning ordinances including those regarding railroad rights-of way.

13. DEC will comply with the City of Antioch s land use zoning ordinances and goals.

14. DEC will comply with the City of Pittsburg s land use zoning ordinances and goals.

15. A Pittsburg City Council s Resolution advised the Commission that if the city were the permitting agency, it would:

    - issue a variance for the heat recovery steam generator stacks (each 144-feet tall);
    - issue a variance for the auxiliary boiler stacks (each 115-feet tall);and
    - impose conditions requiring the stacks to be neutral gray in color and have no signage on them.

The Commission, therefore, concludes that DEC s construction and operation will not result in significant adverse direct, indirect, or cumulative land use impacts. Appropriate implementation of the Conditions of Certification will conform the project to all applicable laws, ordinances, regulations, and standards relating to land use as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall comply with the Pittsburg Zoning Ordinance requirement for Design Review (section 18.36.210).

Protocol: The project owner shall:

- submit to the CEC Compliance Project Manager (CPM) for review and approval site plans (for the power plant and electrical transition structure) as required by Design Review;
- provide evidence that the City of Pittsburg has been consulted regarding the plans; and
- attach any recommendations from the City of Pittsburg.

The project owner shall not implement the plans until approved by the CPM.

Verification: At least 60 days prior to the start of construction of the DEC, the project owner shall submit the site plans to the CPM for review and approval.

The submittal to the CPM shall include any recommendations from the City of Pittsburg.

LAND-2 The project owner shall comply with the following requirements in the Pittsburg Zoning Ordinance:

- property development regulations for structures in a General Industrial District (section 18.54.015);
- required front and street side yards must be landscaped, except for access driveways, or be enclosed by a solid fence or wall at least 6 feet in height (section 18.54.105);
- off-street parking and loading spaces (Chapter 18.78);
- all signs erected on the site shall comply with Title 19 (Sign Regulations) of the Pittsburg Municipal Code; and
- all site developments shall comply with Title 12 (Streets, Sidewalks and Utilities), Title 13 (Water and Sewer) and Chapter 15.88 (Grading, Erosion and Sediment Control) of the Pittsburg Municipal Code.

Verification: At least 60 days prior to the start of construction of the DEC, the project owner shall submit to the CPM a letter from the City of Pittsburg that the project complies with the sections of the Pittsburg Zoning Ordinance listed in **LAND-2**.

LAND-3 The project owner shall submit landscaping and irrigation plans for minimum site landscaping and required planting areas in compliance with the Pittsburg Zoning Ordinance (Chapter 18.82, Article 7).

Protocol: The project owner shall:

- submit to the CPM for review and approval landscaping and irrigation plans for minimum site landscaping and required planting areas;
- provide evidence that the City of Pittsburg Community Development Director and Public Services Director have been consulted; and
- attach any recommendations from the City of Pittsburg.

The project owner shall not implement the plan until approved by the CPM.

Verification: At least 90 days prior to completion of construction of the power plant, the project owner shall submit landscaping and irrigation plans for minimum site landscaping and required planting areas to the CPM for review and approval. The submittal to the CPM shall include any recommendations from the Pittsburg Community Development Director and Public Services Director. (See also, **VIS-8.**)

LAND-4 Upon the permanent closure of the facility, the project owner shall comply with Antioch Zoning Ordinance section 9-5.3826(g)(2) that requires pipelines no longer in use to be abandoned to the satisfaction of the City Engineer and in compliance with all applicable Environmental Protection Agency (EPA) requirements for such abandonment.

Verification: The project owner shall include abandonment of the natural gas pipeline in compliance with Antioch Zoning Ordinance section 9-5.3826(g)(2) and EPA requirements in its facility closure plan.

LAND-5 In a joint effort with the Pittsburg District Energy Facility, the project owner shall design, finance, and construct a linear green belt within the Eighth Street median between Harbor Street and Beacon Street.

Protocol: The project owner shall:

- submit to the CPM for review and approval landscaping and irrigation plans for the Eighth Street linear park;and
- submit the proposed landscaping and irrigation plans to the City of Pittsburg Community Development Director and Public Services Director for review and comment.

The submittal to both the CPM and the City of Pittsburg shall include the landscape compatibility study. The project owner shall not implement the plans until approved by the CPM.

Verification: At least 90 days prior to start of construction of the 230-kV transmission line, the project owner shall submit to the CPM for review and approval landscaping and irrigation plans for the linear green belt within the Eighth Street median. The submittal to the CPM shall include:

- written documentation that the City of Pittsburg Community Development Director and Public Services Director have been consulted regarding the plans;

    - any recommendations from the City of Pittsburg; and
    - and the compatibility study.

LAND-6 The project owner shall relocate the pressurized wastewater line exiting the Delta Diablo Sanitation District (DDSD) pumping station from a depth of 6 feet to a depth of 14 feet. The project owner shall construct a second deadhead -pressurized line stub of similar design at a depth of 14 feet.

Protocol: The project owner shall submit to the CPM for review and approval a plan for relocating the pressurized wastewater line and constructing the second pressurized line stub. The project owner shall

provide written documentation that the Delta Diablo Sanitation District has been consulted regarding the plan, and attach any recommendations from the District. The project owner shall not implement the plan until approved by the CPM.

Verification: At least 90 days prior to the start of construction of the 230-kV transmission line, the project owner shall submit to the CPM for review and approval a plan for relocating the pressurized wastewater line and constructing the second pressurized line stub. The submittal to the CPM shall include any recommendations from the Delta Diablo Sanitation District.

LAND-7 The project owner shall coordinate with the PDEF construction activities within the Eighth Street corridor to allow, to the greatest extent feasible, concurrent construction of the DEC and PDEF transmission lines. The objective of this effort is to minimize disturbance in the area.

Protocol: The project owner shall submit a construction plan to the CPM for review and approval describing how the project owner intends to coordinate construction activities within the Eighth Street corridor with the PDEF, and provide a schedule that shows the construction start and completion dates for the two transmission lines. The project owner shall provide written documentation that the City of Pittsburg has been consulted regarding the plan, attaching any recommendations from the City of Pittsburg. The project owner shall not implement the plan until approved by the CPM.

Verification: At least 90 days prior to start of construction of the 230-kV transmission line, the project owner shall submit a construction plan to the CPM for review and approval. The submittal to the CPM shall include any recommendations from the City of Pittsburg.

LAND-8 The project owner shall construct the power plant in conformance with the requirements of a variance from the City of Pittsburg s maximum height limitation to allow the project s heat recovery steam generator (HRSG) stacks to be 144 feet tall and the steam boiler stacks to be 115 feet tall.

Verification: At least 60 days prior to the start of construction, the project owner shall submit design specifications to the CPM demonstrating that the HRSG stacks will be limited to 144 feet and the steam boiler stacks will be limited to 115 feet and that the project shall comply with other conditions contained in the City of Pittsburg s Resolution No. 99-9060 (November 15, 1999).

B. TRAFFIC AND TRANSPORTATION

Construction and operation of the project and its ancillary facilities have the potential to adversely impact the transportation system in the project vicinity. During the construction phase, large numbers of workers arriving and leaving during peak traffic hours could increase roadway congestion and also affect traffic flow. The proposed underground facilities are located within existing easements requiring trenching and other activities potentially disruptive to traffic flows. In addition, the transportation of large pieces of equipment could affect traffic flows and roadway use. Traffic related to plant operation does not tend to produce similar impacts because of the limited number of vehicles involved.

The levels of service (LOS) that measure existing and anticipated traffic flows are used to evaluate a project s potential impacts to the local transportation system. (Ex. 2,/8.10.1.3.) LOS measurements represent the flow of traffic, ranging from level A (free flowing traffic) to level F (heavily congested with traffic flow stopped). (Ex. 2,/8.10.1.3.) The City of Pittsburg tries to maintain LOS C as the standard for all intersections, with LOS D (volume to capacity ratio=0.85) identified as the peak hour signalized intersection standard for identifying significant impacts. (Ex. 20, p. 127.)

SUMMARY OF EVIDENCE

DEC will be located on an undeveloped 20-acre parcel in the City of Pittsburg. (Ex. 20, p.126.) The site is located at the Dow Chemical Company facility, generally north and west of the adjacent Delta Diablo Sanitation District treatment facility. (*Ibid.)* The site is bordered to the south by the Pittsburg-Antioch Highway, to the north by the Burlington Northern Santa Fe Railroad, on the west by Loveridge Road, and on the east by the Delta Diablo Sanitation District. (*Ibid.)*

The City of Pittsburg has designated a truck route to serve the facility. (Ex. 2,/ 8.10.1.2.) The trucks will use State Highway 4 and the Loveridge Road interchange, via Loveridge Road to the Pittsburg-Antioch Highway and then east. *(Ibid.)*. The Pittsburg-Antioch Highway connects to Arcy Lane, which is the access road to the project site. (Ex. 2,/8.10.2.1.)

In addition to the truck route, the Applicant will use rail for heavy equipment delivery. (Ex. 2,/8.10.2.1.) Project equipment will be shipped on Dow rail line 692, which enters DEC through the Dow property in an east-west direction. (Ex. 20, p. 133.) A rail siding also located on the Dow property, about 300 feet north of the existing Burlington Northern and Santa Fe right-of-way, will be used for equipment off loading. *(Ibid.)* A heavy transporter will be used to move the heavy components from the rail siding to the site location, traveling along the rail siding and turning onto Arcy Lane. *(Ibid.)* From Arcy Lane, the transporter will travel south and turn at the entry road to the facility. *(Ibid.)* No access onto public highways will be required during these hauling trips. *(Ibid.)*

1. Construction Impacts

The 22-24 month construction schedule anticipates an average workforce of 165 workers per day and a peak workforce of about 575 workers per day. (Ex. 20, p.130.) The Pittsburg-Antioch Highway will experience the greatest volume of construction traffic because it is the primary route to the site. See **Traffic And Transportation** Table 1, replicated from Applicant s testimony. (Ex. 2, AFC Table 8.10-5.)

Table 1 reflects that both before and after plant construction, State Route 4 to Pittsburg-Antioch Highway (via Loveridge Road) truck route segment will project to LOS F, the project adding a daily average of 250 vehicles.

TRAFFIC AND TRANSPORTATION TABLE 1
1998 and Future Daily and Peak-Hour Traffic Volumes
and LOS during Construction

Daily Volumes/Additional Daily Trips				**P.M. Peak Hour Volumes/LOS**			
	1998	2000	With Project		1998	2000	With Project
Street Segment	**ADT**	**ADT**	**ADT**	**Capacity**	**Vol./LOS**	**Vol./LOS**	**Vol./LOS**
Pittsburg-Antioch Highway Loveridge Road to City Limits	9,500	10,150	11,285	17,000	1,350/A	1,445/A	1,944/A
Somersville Rd. SR 4 to Pittsburg-Antioch Hwy.	12,600	13,480	14,048	41,400	1,600/C	1,715/C	1,965/C
Loveridge Rd. North of Pittsburg Antioch Hwy.	2,880	3,100	3,100	32,000	360/C	385/C	385/C
SR4 to Pittsburg-Antioch Hwy.	24,120	26,110	26,678	32,000	3,015/E	3,230/F	3,480/F
State Route 4 Railroad Ave to Loveridge Road	88,600a	3,996	94,280	75,000	6,300/F	6,686/F	6,811/F
Loveridge Road to Somersville Rd.	89,600a	95,060	95,628	75,000	6,400/F	6,790/F	7,0440/F
Somersville Road to Contra Loma Blvd.	95,800a	101,634	101,918	75,000	6,700/F	7,110/F	7,235/F

Source: AFC Table 8.10-5

Applicant asserts insignificant impact on the local transportation system due to plant construction activities for the following reasons:

- The temporary nature of the daily traffic volume increases on nearby roadways, and the heaviest impact localized near the construction site.[147]

- Construction worker carpooling, busing, flex scheduling to avoid peak hour periods;
- LOS patterns remaining static under worst case scenarios for the additional traffic generated from peak construction periods. (10/5 RT, p. 291:1, 292:5; Ex. 20, p. 127; Ex. 2,/8.10.2.2.5.)

In total, approximately 4,451 truck deliveries are expected over the 22-24 month construction period, with an average of about 10 deliveries per weekday. (Ex. 20, p. 130.) Truck deliveries will occur between 8:00 a.m. and 4:30 p.m. accounting for increased construction traffic. *(Ibid.)* During the month with the highest truck traffic, an additional 26 trucks per weekday are expected, resulting in an additional 52 daily trips. *(Ibid.)* All deliveries will utilize the Pittsburgh-Antioch Highway to access Arcy Lane. (Ex. 20, pp. 130-31.)

Testimony was presented on the subject of construction of a new right turn lane near the intersection of the Pittsburg-Antioch Highway and Loveridge Road. (10/5 RT 287:13, 289:13.) The parties agreed that the lane would be completed during the summer of 2000. Staff stated that its construction would improve traffic congestion at the intersection from LOS E to LOS C. (10/5 RT 289:14, 291:10; (Ex. 20, p. 127.)

Staff analyzed potential safety hazards related to truck delivery of hazardous material, specifically, related to the transport of anhydrous ammonia. (Ex. 20, pp.

[147] Applicant asserts under a worst case scenario, an additional 1,135 trips to and from the site. (Ex. 2,/8.10.2.2.5.)

132-33.) Staff concluded that the transport of anhydrous ammonia along the proposed truck route is adequate with no safety improvements needed. *(Ibid.)* Both State Route 4 and the Pittsburg-Antioch Highway has been approved by CalTrans for use in the transportation of inhalation related hazardous materials.[148] *(Ibid.)*

A proposed 20-inch natural gas pipeline will extend east from the project site for approximately five miles. (Ex. 20, pp. 133-34.) The pipeline will interconnect to Pacific Gas & Electric s PG&E s Line 400 (backbone pipeline to the PG&E gas system) near PG&E s Antioch Terminal. (Ex. 20, p. 134.) The natural gas pipeline route will be placed primarily along the Burlington Northern and Santa Fe right-of-way. *(Ibid.)*

Work on the gas pipeline is expected to take approximately 3 to 4 months and will require a peak workforce of 140 workers daily. (Ex. 20, pp. 134.) These workers will commute directly to the plant site and then be bused to their offsite work locations. (Ex. 2, p. 8.10-10.) Assuming a bus occupancy rate of 40 to 50 passengers, 3 to 4 buses will be required. *(Ibid.)* Using an occupancy rate of 2.5, approximately 40 additional daily trips will occur as a result of transporting the workers to and from their work locations *(Ibid.)* Peak construction traffic during the P.M.[149] peak hour will result in approximately 242 additional daily trips.[150] *(Ibid.)*

Applicant asserts that the number of trucks used during construction will be low. (Ex. 2,/8.10.2.2.2.) During construction of the gas pipeline, approximately 10

[148] Staff focused its safety analysis on the transport of anhydrous ammonia once the truck deliveries leave the State Highway system to the proposed site, in light of the general commercial nature of State Route 4 or other like highways. (Ex. 20, p. 132.)

[149] Applicant asserts the use of a P.M. peak-hour (4 p.m.-6 p.m.) analysis is appropriate because both the City of Pittsburg s General Plan and Master Plan Update concentrate on P.M. volumes versus A.M. (7 a.m.-9 a.m.) volumes. (Ex. 2,/8.10.1.2.)

[150] This figure is obtained using a 1.16 estimated commuter vehicle occupancy rate, based on 1990 Contra Costa County census data. (Ex. 2,/8.10.2.2.1.)

trucks will be used on a daily basis since most major pieces of construction equipment will remain on the railroad right-of-way. *(Ibid.)*

Gas pipeline construction at the project will involve trenching and back filling of road crossings that will be completed as a single construction activity. (Ex. 20, p. 134.) In addition to open trenching methods, horizontal directional drilling will occur at various intersections to avoid traffic delays. *(Ibid.)* Between the gas pipeline interconnection point at PG&E s Line 400 and the DEC site, the gas pipeline will cross four streets in the City of Antioch: Viera Lane, Minaker Drive, Fulton Shipyard Road, and L Street. (Ex. 2,/. 8.10.2.2.2.)

These streets will be open-trenched but construction activity damage to existing roads will be repaired to their original condition.[151]

Access during pipeline construction will be along existing roads and rights-of-way and through access will be provided at all times. (Ex. 2,/8.10.2.2.2.) Access for emergency vehicles, such as fire and ambulance services to local land uses will be maintained during construction. *(Ibid.)*

Linear facilities include both overhead and underground transmission lines. (Ex. 20, p. 134.) Construction of the transmission line and switchyard is expected to occur over a 5-month period. (Ex. 20, p. 135.) A peak workforce of approximately 30 workers will be required. *(Ibid.)* Assuming an average vehicle occupancy rate of 1.16, 52 additional vehicle trips will occur each day of the workweek. (Ex. 2,/8.10.2.2.3.) Similar to the natural gas pipeline installation, workers will be transported from the plant site to a work location by bus *(Ibid.)* The bus will return to the plant site until it is time to pick up the workers at the end of the workday resulting in approximately 10 additional daily trips. *(Ibid.)* During construction of the transmission line and switchyard, approximately 10 construction trucks will be used on a daily basis. (Ex. 2,/8.10.2.2.3.) These

[151] Where impractical to return to the preexisting conditions, improvements will closely approximate the preexisting conditions. (Ex. 2,/8.10.2.2.2.)

trucks will be parked along the road shoulders. *(Ibid.)* The maximum traffic impact will be associated with short-term detours of residential vehicles several blocks at a time. (Ex. 20, p. 135.) Applicant and staff agree that each of these construction activities will have short-term and minimal impacts on the function of area roadways. *(Ibid.)* Use of typical signals, or warnings will also notify motorists of construction activity. *(Ibid.)*

The proposed overhead transmission line crosses Loveridge Road and Columbia Street. (Ex. 20, p. 134.) Traffic will be routed around the pole installation activity, which will be minimal. *(Ibid.)*

Underground, the transmission line crosses: Harbor Street and along 8th Street, East Street, Los Medanos, Cumberland, Railroad Avenue, Black Diamond, York Street, Cutter Street, West Street, and Montezuma Street. (Ex. 20, p. 134.) Traffic will be routed around construction activity. *(Ibid.)*

2. Operation Impacts

During project operation, the project will employ approximately 16 full-time employees generating about 25 car trips per day.[152] (Ex. 2, / 8.10.2.3.1.) However, these trips will not impact rush hour traffic due to the 12-hour shift schedule and flexible working hours. (See 10/5 RT, p. 285-286.)

During plant operations, trucks will periodically deliver and pick up replacement parts, lubricants, liquid fuel, anhydrous ammonia, aqueous ammonia,[153] sulfuric acid, trash, and other consumables. (Ex. 20, p. 136.) **Traffic and Transportation** Table 2, replicated from Applicant s testimony, highlights

[152] This includes trips by employees and visits by trades people, vendors, consultants, and management personnel. (Ex. 2,/8.10.2.3.1.)

[153] Anhydrous ammonia, aqueous ammonia, and acids are considered potential inhalation hazards. Various cleaning chemicals are considered hazardous materials. Anticipated delivery frequencies of these chemicals are as follows: anhydrous ammonia, one delivery every 7 days (8,000-gallon truck); aqueous ammonia and cleaning chemicals, one delivery per month; and sulfuric acid, one delivery per month. (Ex. 20, pp. 136-37.)

expected truck deliveries for the project. (Ex. 2, AFC Table 8.10-6.) On an average, there would be two truck deliveries to the project site per day. *(Ibid.)*

TRAFFIC AND TRANSPORTATION TABLE 2

Estimated Truck Traffic at the DEC Facility during Operation

Delivery Type	Number and Occurrence of Trucks	Quantity
Anhydrous Ammonia	1 every 7 days	8,000 gal
Sulfuric Acid	1 per month	5,000 gal
Other Chemicals	1 per month	4,000-6,000 gal
Trash Pickup	1 per week	9 ft.

Source: AFC Table 8.10-6

3. Cumulative Impacts

The only other development project proposed in the area is the Pittsburg District Energy Facility (PDEF) a 500 MW generating facility to be located west of the USS-POSCO steel mill. (Ex. 20, p. 137.) In addition, various drainage projects are proposed throughout the Pittsburg community. *(Ibid.)* During construction of the DEC, however, no cumulative impacts on traffic are expected for the following reasons:

- Peak construction traffic at the PDEF will occur before peak construction traffic at the Delta Energy Center begins.

- Traffic for the PDEF will not use the same access roads used by Delta Energy Center. Delta Energy Center will likely use the Somersville Road exit-off of Highway 4, turning west onto the Pittsburg-Antioch Highway, and then proceeding north onto Arcy Lane to the project site.

PDEF, on the other hand, will utilize the Loveridge Road exit from Highway 4, turning west onto the Pittsburg-Antioch Highway,[154] then proceeding northwest--on the newly constructed Truck Bypass Road--to Harbor Street north onto 3rd Street east to the project site. (Ex. 20, p. 137.)

After both facilities are constructed, they will operate 7 days a week, 24 hours per day. The DEC will likely use a fewer number of operating personnel (16) than PDEF (25), Monday through Friday of each week. This small number of commuters will not significantly impact traffic. (Ex. 20, p. 138.)

FINDINGS AND CONCLUSIONS

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

1. Although the majority of the power plant and linear facilities are located in Pittsburg, the project-reclaimed water lines and natural gas lines cross into the jurisdiction of the City of Antioch.

2. At the peak of construction, a total work force of 575 workers per day will commute to the DEC. The Pittsburg-Antioch Highway will experience the greatest volume of construction traffic because it is the primary route to the site.

3. Project construction and operation will increase traffic on the roads near the project site.

4. Construction-related traffic impacts will be temporary.

5. Construction of the electric transmission line is not expected to create long-term effects on the traffic system in the area. The transmission line will pass through areas with low levels of roadway traffic.

6. Traffic related to project construction and operation will not degrade the Level of Service on roads in the project vicinity.
7. Applicant will comply with specified off-peak timelines for construction of linear facilities near congested roadways.

[154] Proceeding west at this point moves in the opposite direction of the DEC.

The Commission, therefore, concludes that implementation of the mitigation measures described in the Conditions of Certification below ensures that project-related traffic will not result in significant impacts to the transportation system in the project vicinity.

Additionally, with implementation of the Conditions of Certification listed below, the project will conform with all applicable laws, ordinances, regulations, and standards relating to traffic and transportation as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall require that all truck traffic use the existing designated truck route: From SR 4 and Loveridge Road interchange, via Loveridge Road to the Pittsburg-Antioch Highway, and then east to Arcy Lane to the construction access road to be built south of the Delta Diablo Sanitation District Administration Building.

Verification: The project owner shall include this specific route in its contracts for truck deliveries and shall report any noncompliance and any corrective measures taken to ensure future compliance in the Monthly Compliance Reports.

TRANS-2 The project owner shall comply with California Department of Transportation (Caltrans), the City of Pittsburg, the City of Antioch, and Contra Costa County limitations on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

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

TRANS-3 The project owner or its contractor shall comply with Caltrans, the City of Pittsburg and the City of Antioch limitations of encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

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

TRANS-4 The project owner shall ensure that all federal, state, and local regulations for the transport of hazardous materials are observed.

Verification: The project owner shall include in its monthly compliance reports, copies of all shipping manifests related to hazardous material shipments.

TRANS-5 Prior to the start of construction, the project owner shall consult with the City of Pittsburg, the City of Antioch, and Caltrans to prepare a construction traffic control plan and implementation program which address the following issues:

1. timing of heavy equipment and building materials deliveries and pick ups;
2. signing, lighting, and traffic control device placement;
3. establishing construction work hours outside of peak traffic periods;
4. emergency access;
5. temporary travel lane closures;
6. maintaining access to adjacent residential and commercial property and;
7. off-street employee parking in construction areas during peak construction.

Verification: The project owner shall provide to the CPM for review and approval, a copy of its construction traffic control plan and implementation program.

TRANS-6 Following construction of the power plant and all related facilities, the project owner shall meet with the CPM, City of Pittsburg, City of Antioch Caltrans, and Contra Costa County to determine the schedule and the necessary actions to complete the repair of all roadways to original or as near original condition as possible.

Protocol: Prior to start of construction, the project owner shall photograph the roadway areas that will be affected by the gas pipeline construction (Viera Lane, Minaker Drive, Fulton Shipyard Road), and the

underground electric transmission line installation (in the area of Harbor Street and along 8th Street, East Street, Los Medanos, Cumberland, Railroad Avenue, Black Diamond, York Street, Cutter Street, West Street, and Montezuma Street). The project owner shall provide the CPM, City of Pittsburg, City of Antioch, Caltrans, and Contra Costa County with a copy of these photographs. (Ex. 29, Attachment.)

Verification: The project owner shall meet with the CPM and City of Pittsburg, City of Antioch, Contra Costa County, and Caltrans. The project owner shall provide copies of letters from these agencies acknowledging satisfactory completion of the roadway repairs in the first Annual Compliance Report.

TRANS-7 The owner shall schedule construction work hours that avoid the morning (7 a.m. to 9 a.m.) and evening (4 p.m. to 6 p.m.) peak-hour traffic periods (includes heavy truck traffic).

Verification: The project owner shall maintain a delivery log which specifies, in part, the time and date of each delivery in the on-site compliance file.

TRANS-8 Construction of the reclaimed water supply and wastewater discharge lines along Arcy Lane shall provide for vehicle access to the existing businesses, including provisions for emergency vehicle access.

Protocol: The project owner shall contact the businesses which utilize Arcy Lane to discuss scheduling of pipeline construction activities, and establish appropriate construction timeframes for pipeline activities along this private roadway.

Verification: The project owner shall in the Monthly Compliance Reports to the CPM, report on the use of the above measures in the construction of the underground pipeline. This condition shall be reflected in the construction traffic control plan and implementation program. The Monthly Compliance Reports shall also identify any alternative measures that were used to minimize impacts on Arcy lane.

TRANS-9 The project owner shall demonstrate compliance with the City of Pittsburg s and the City of Antioch s right-of-way encroachment requirements. These requirements are contained in the City of Antioch Encroachment Regulations Articles 1 through 7, and the City of Pittsburg Encroachments Within Public Right-of-Ways, Title 12, Chapter 12.01, and referenced in Appendix A.

Protocol: The project owner shall contact the City of Antioch and City of Pittsburg and submit all documentation for their review and comment (insurance and construction bond as appropriate) and pay all fees applicable to encroachment. The project owner shall also contact various local agencies (City of Pittsburg, City of Antioch, Contra Costa County, and Caltrans) to discuss scheduling of construction activities within their

jurisdiction, and establish appropriate construction timeframes for pipeline and electric transmission activities along key intersections.

Verification: 30 days prior to construction of the gas line and transmission line the project owner shall provide a copy of the final encroachment documentation, including comments received from the City of Antioch and the City of Pittsburg in the next Monthly Compliance Report following their receipt for approval by the Energy Commission CPM.

C. VISUAL RESOURCES

Visual resources are the natural and cultural features of the landscape that can be seen and that contribute to the visual character or quality of the environment. The California Environmental Quality Act (CEQA) requires an examination of a project s visual impacts on the environment which, in this case, would focus on the project s potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code of Regs., tit. 14, Appendices G and I.)

SUMMARY OF EVIDENCE

1. Visual Setting

The site is zoned General Industrial. (City of Pittsburg Zoning Ordinance.) It is located about one-half mile south of the New York Slough shoreline. Industrial uses lie to the north and west. The Pittsburg-Antioch Highway is about one-quarter mile to the south. The Delta Diablo Sanitation District facilities are located along the eastern boundary. (Ex. 20, p. 176.) An open grass-covered field and a drainage canal are located between the site and Pittsburg-Antioch Highway. The overhead transmission line follows existing power lines and runs adjacent to industrial development and open fields. (*Ibid*.)

2. Potential Impacts

Project facilities that could cause significant visual impacts include the three tall HRSG stacks (144 feet high) and associated HRSG units (80 feet high), two auxiliary boiler stacks (115 feet high), a massive cooling tower array (60 feet high by 412 feet long by 135 feet wide), transmission poles (105 feet high) and the transition station (105 feet high). (Ex. 20, p. 181.) Other project elements that could create visual impacts include night lighting and exhaust steam plumes. The underground transmission line, gas line, and water lines will not be visible after construction. (*Ibid*.)

Applicant conducted visual studies of the existing site and surrounding landscape at locations where the project could potentially be seen. (10/13 RT 49.) Three key observation points (KOP) were chosen to represent particularly sensitive viewpoints. (Ex. 2,/8.11.1.4 et seq.)

- KOP-1: the Pittsburg-Antioch Highway at the Casa Medanos residential motel;
- KOP-2: the recreation areas to the east, including the Babe Ruth Baseball Field and the Antioch Marina; and
- KOP-3: the Columbia Street/East Santa Fe neighborhood to the west.

Applicant took panoramic photographs of these viewpoints to document their existing visual features. Applicant then prepared photosimulations of the viewpoints that show project features superimposed on the original photographs. Applicant asserts that these simulations objectively demonstrate whether project impacts would be noticeable to sensitive public views. (Ex. 2,/8.11.2.3.) See Applicant s Figures replicated here as **Visual Resources** Figures 1-5 on the following pages.

a. Key Observation Points (KOP)

The view from KOP 1 shows the site and laydown area from a portion of the Pittsburg-Antioch Highway near the Casa Medanos residential motel. (Ex. 2,/ 8.11.2.3.1.) According to Staff, the two-year construction period, which introduces additional lighting, construction equipment, and project components into the viewshed will result in significant visual impacts at KOP 1. Staff believes these construction-related activities conflict with the City of Pittsburg s General Plan regarding the preservation of open space and view corridors to the waterfront and river. (Ex. 20, p. 185.)

Visual Resources Figure 1

Source: Ex. 2

Visual Resources Figure 2

Source: Ex. 2

Visual Resources Figure 3

Source: Ex. 2

Visual Resources Figure 4

Source: Ex. 2

Visual Resources Figure 5

Source: Ex. 2

Applicant contested Staff s assessment because the residential units at Casa Medanos are not oriented toward the site; nevertheless, Applicant agreed to mitigate the offsite visibility of construction activity as requested by Staff. (Ex. 1, p. 38.) Mitigation includes the installation of temporary aesthetic screening to obscure views of most of the lighting, equipment, and construction vehicles from the highway and Casa Medanos. (Ex. 20, p. 185.) Condition **VIS-7** ensures that these mitigation measures will be implemented.

After construction, the project will dominate views from KOP 1. (Ex. 20, p. 185.) Project components will diminish views of open space and obscure an existing view corridor to the water in conflict with the General Plan. (*Ibid*.) In addition, the City of Pittsburg, in cooperation with Dow Chemical, plans to develop a portion of the area from the highway to the Dowest Slough as a drainage retention basin, which would remain an undeveloped area. (10/13 RT 65.)

Applicant will implement several mitigation measures to ameliorate the visual impacts in this viewshed. Mitigation includes using neutral colors on project structures, non-reflective fencing, non-glare signage, shielded lighting to minimize nighttime glare, landscape screening around the southern and western edges of the plant, and cooperation with the City of Pittsburg and Dow Chemical in development of landscaping and preservation of views across the drainage retention basin, that provides views of the river. (10/13 RT 51-53.) Conditions **VIS-8** and **VIS-9** ensure that landscaping will be consistent with City of Pittsburg policy and will enhance the existing view corridor across the Dowest Slough area.

The parties agreed that visual impacts to the KOP 2 and KOP 3 viewsheds were insignificant and would not require additional mitigation.[155] (Ex. 20, pp. 188-193.) Applicant and staff agree that potential visual impacts of the overhead

[155] Staff noted that the project introduces new, noticeable sources of nighttime lighting that would be visible to the public at the KOP 2 viewshed; however, Condition VIS-3, which requires Applicant to implement a lighting plan to reduce glare and backscatter, will reduce this potential visual impact to insignificance. (Ex. 20, p. 190.)

transmission line are not significant because the power line poles will blend into the industrial area viewshed that contains other power poles. (Ex. 20, p. 191.) Residential views of the poles will not be affected because the nearest residential area at KOP-3 is over one mile from the line. (Ex. 20, p. 192.) The transition station has been moved to USS-POSCO property and is not visible at KOP-3. (Ex. 1, p. 39.)

b. Visible Plumes

The project will produce visible steam exhaust plumes from cooling towers and HRSG exhaust stacks. (Ex. 20, p. 194.) Staff determined that several existing plants in the region produce steam plumes that vary in size from slightly smaller to slightly larger than those expected for the DEC project. (*Ibid*.) The most noticeable visual impacts would occur from the waterways and islands. However, the DEC plumes would only be visible intermittently and blended with other plumes from nearby facilities; therefore, potential impacts would be less than significant. (*Ibid*.)

c. Cumulative Impacts

The proposed project will increase visual impacts in combination with the development of PDEF, adding additional structures, power poles and lines, and visible plumes in the existing industrial area. (Ex. 20, p. 194.) However, according to Staff, the most impacted views would occur at residences in the southern hills with panoramic views that include both facilities. Staff concluded that the increased density of industrial facilities in the area would not be substantial enough to create significant cumulative visual impacts. (*Ibid*.)

COMMISSION DISCUSSION

Although Staff and Applicant initially disagreed on the potential visual impacts at KOP 1, they have agreed on appropriate measures to alleviate the concerns raised by Staff. The mitigation proposals identified in the evidence of record are feasible measures that do not compromise project design or function. Further,

Applicant confirmed its commitment to work with the City of Pittsburg in developing plans to enhance the view across the retention basin to the waterfront. The Commission is persuaded that the industrial nature of the viewshed minimizes the potential for cumulative visual impacts resulting from the project and associated linear facilities.

FINDINGS AND CONCLUSIONS

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

1. The project is located in a highly industrialized area.

2. Project facilities that could cause significant visual impacts include the three tall HRSG stacks and associated HRSG units, two auxiliary boiler stacks, a massive cooling tower array, transmission poles and the transition station.

3. The nearest sensitive public view is the Casa Medanos residential motel, south of the Pittsburg-Antioch Highway.

4. Applicant will install temporary aesthetic screening along the Pittsburg-Antioch highway to block views of construction activities during the two-year construction period.

5. To mitigate potential visual impacts during project operation, Applicant will implement the following measures: neutral colors on project structures, non-reflective fencing, non-glare signage, landscape screening around the southern and western edges of the plant, and shielded lighting to minimize nighttime glare.

6. The City of Pittsburg has instituted a policy to preserve open space and view corridors to the waterfront.

7. Applicant will cooperate with the City of Pittsburg and Dow Chemical in development of landscaping around and preservation of views across a drainage retention basin along the western boundary of the project site.

8. The project s visual impacts from the recreational areas to the east and from residential areas to the west will not be significant.

9. Visual impacts from views of the transmission poles and electric transition station from the Columbia Street/East Santa Fe Avenue area will not be significant.

10. Plumes from the project s cooling towers and heat recovery steam generator (HRSG) stacks will not cause significant impacts to visual resources.

11. Potential cumulative visual impacts from the addition of both DEC and PDEF in the industrial viewshed will not be significant.

12. Implementation of the following Conditions of Certification will ensure that DEC conforms with all applicable laws, ordinances, regulations, and standards relating to visual resources as identified in the pertinent portions of APPENDIX A of this Decision.

The Commission concludes, therefore, that implementation of the mitigation measures contained in the Conditions of Certification and otherwise described in the record of evidence will ensure that neither the power plant nor its transmission facilities will cause significant adverse impacts to visual resources.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall treat the project structures, buildings, and tanks visible to the public in a non-reflective color to blend with the surroundings. The project owner shall treat the exhaust stacks with a heat-resistant color that minimizes contrast and harmonizes with the surrounding environment.

Protocol: The project owner shall submit a treatment plan for the project to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:

- specification, and 11" x 17" color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
- a detailed schedule for completion of the treatment; and,
- a procedure to ensure proper treatment maintenance for the life of the project.

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

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

The project owner shall notify the CPM within one week after all precolored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: Not later than 30 days prior to ordering the first structures that are color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

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

VIS-2 Any fencing for the project shall be non-reflective.

Protocol: At least 30 days prior to ordering the fencing the project owner shall submit to the CPM for review and approval the specifications for the fencing documenting that such fencing will be non-reflective.

If the CPM notifies the project owner that revisions of the specifications are needed before the CPM will approve the submittal, the project owner shall submit to the CPM revised specifications.

The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CPM.

The project owner shall notify the CPM within one week after the fencing has been installed and is ready for inspection.

Verification: At least 30 days prior to ordering the non-reflective fencing, the project owner shall submit the specifications to the CPM for review and approval. If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to the start of commercial operation, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary;

- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied;

- A lighting complaint resolution form (following the general format of that in Attachment 1) will be used by plant operators, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 90 days before ordering the exterior lighting, the project owner shall provide the lighting plan to the CPM for review and approval. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the lighting plan.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection.

VIS-4 The project owner shall comply with the requirements of Section 18.80.035 of the City of Pittsburg Zoning Ordinance regarding screening of refuse storage areas.

Protocol: The project owner shall submit a plan for screening refuge storage areas that conforms to the requirements of Section 18.80.035 of the zoning ordinance to the CPM for review and approval and to the City of Pittsburg for review and comment.

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

The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM.

The project owner shall notify the CPM within one week after the screening has been installed and is ready for inspection.

Verification: At least 30 days prior to installing the screening, the project owner shall submit the plan to the CPM for review and comment and to the City of Pittsburg for review and approval. If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the screening that the screening is ready for inspection.

VIS-5 The project owner shall comply with the requirements of Section 18.82.045 of the City of Pittsburg Zoning Ordinance regarding site maintenance.

Verification: In each Annual Compliance Report the project owner shall submit a statement that the requirements of Section 18.82.045 of the City of Pittsburg Zoning Ordinance have been met.

VIS-6 The project owner shall restore any and all areas that are disturbed during the construction or operation of any portions of the proposed underground utilities.

> Protocol: The project owner shall submit a plan for restoring the surface conditions of any rights-of-way disturbed during construction of underground utilities. The plan shall include grading to the original grade and contour and revegetation of the rights-of-way. For rights-of-way located in the City of Antioch, the submittal shall include evidence from the City of Antioch that the plan conforms to the requirements of Community Design Policy 2 in the City of Antioch General Plan. For rights-of-way located in the City of Pittsburg or elsewhere, the submittal shall include similar detail and information for restoration of surface conditions.
>
> If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the submittal, the project owner shall submit to the CPM a revised plan.
>
> The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM.

The project owner shall notify the CPM within one week after the grading and revegetation has been installed and is ready for inspection.

Verification: At least 30 days prior to beginning implementation of the surface restoration, the project owner shall submit the plan to the CPM for review and approval and to the cities of Pittsburg and Antioch for review and comment.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing the surface restoration that it is ready for inspection.

VIS-7 Immediately before beginning use of the 10-acre construction laydown area for the power plant, the project owner shall implement the installation of temporary aesthetic screening along the south and west portions of the perimeter

of the construction laydown area. The aesthetic screening shall remain in place for the duration of the use of the area. Screening shall be high enough to obscure views of most of the lighting, as well as equipment, vehicles, and materials in the area, from the highway and apartment complex to the south. Upon completion of construction of the project, the aesthetic screening shall be removed and the construction laydown area shall be revegetated and coordinated with the City of Pittsburg s plans for the proposed retention basin primarily using plants native to the local region. The goal of the revegetation shall be to maintain the open space character of the site and area.

Protocol: The project owner shall submit to the CPM for review and approval a specific plan describing its temporary aesthetic screening plan, providing evidence that the City of Pittsburg has been consulted regarding the plan, and attaching any recommendations from the City of Pittsburg. The plan shall include, but not be limited to:

- a detailed plan, at a reasonable scale, which identifies the type, character, colors, and other detailed information for the proposed temporary screening.
- elevations of the views of the temporary aesthetic screening showing how the objectives of the screening will be accomplished.
- any maintenance procedures; and
- a procedure and plan for removing the temporary aesthetic screening.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

The temporary aesthetic screening and any other plan features shall not be installed before the plans are approved. The project owner shall notify the CPM, and the City of Pittsburg when the plans have been implemented and are ready for inspection.

Verification: At least 60 days prior to the start of use of the construction laydown area for the power plant, the project owner shall submit the proposed temporary aesthetic screening plan to the CPM for review and approval. The project owner shall also submit the proposed aesthetic screening plan to the City of Pittsburg for review and comment. The project owner shall submit any required revisions within 30 days of notification by the CPM. The project owner shall notify the CPM and the City of Pittsburg within seven days after implementing the proposed plan that the temporary aesthetic screening installation is ready for inspection.

VIS-8 Immediately following completion of construction of the power plant, the project owner shall implement the installation of aesthetic screening along the south and west edges of the power plant site that will partially screen views of the lower portion of the facility from the Pittsburg-Antioch Highway and nearby residences. Screening may consist of a combination of plants, aesthetic berms, and walls or fencing. Vegetation selected for landscape screening shall consist primarily of plants that are native to the local region. Screening vegetation shall consist of trees and shrubs in groupings designed to form a varied visual edge. Planting of screening vegetation shall be initiated as soon as possible during facility construction and shall achieve a minimum of 50% screening of the lower 40 feet of the facility within 10 years of the startup of operation of the facility. The goal of the screening should be to maintain the open space character of the remaining area, reduce impacts of new sources of lighting, and partially screen the lower portion of the power plant to help blend it with its surroundings and soften the visual impacts of the project.

Protocol: The project owner shall submit to the CPM for review and approval a specific plan describing its aesthetic screening plan, providing evidence that the City of Pittsburg has been consulted regarding the plan, and attaching any recommendations from the City of Pittsburg. The plan shall include, but not be limited to:

- a detailed landscape and grading plan, at a reasonable scale, which includes a list of proposed tree and shrub species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives.

- elevations of the views of the aesthetic screening projected for 5 years and 10 years from the time of startup of operation of the facility that show how the planting will achieve the required screening objective of 50% screening of the lower 40 feet of the facility within 10 years of the startup of the facility.

- maintenance procedures, including any needed irrigation; and

- a procedure for replacing unsuccessful plantings.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

The landscaping and any other plan features shall not be installed before the plan is approved. The project owner shall notify the CPM and the City of Pittsburg when the plan has been implemented and is ready for inspection.

Verification: At least 90 days prior to the first turbine roll of the power plant, the project owner shall submit the proposed aesthetic screening plan to the CPM for review and approval. The project owner shall also submit the proposed aesthetic screening plan to the City of Pittsburg for review and comment. The project owner shall submit any required revisions within 30 days of notification by the CPM. The project owner shall notify the CPM and the City of Pittsburg within seven days after implementing the proposed plan that the aesthetic screening installation is ready for inspection.

VIS-9 To maintain and enhance the existing view corridor across Dowest Slough to the water from the Pittsburg-Antioch Highway and the Casa Medanos residential complex, the project owner shall prepare and implement an aesthetic enhancement plan for the Dowest Slough area.

Prior to completion of construction of Dow s proposed retention basin, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) for review and approval, and to Dow Chemical and the City of Pittsburg Community Development Department for review and comment, an aesthetic enhancement plan as described in the Protocol section of this condition. (Protocol 1-6).

In addition, once sufficient Dow retention basin design information is available, if Dow Chemical and the project owner agree that construction of the retention basin will not conflict with plantings on the west side of Dowest Slough, the project owner shall prepare and submit to the CPM for approval and to Dow Chemical and the City of Pittsburg Community Development Department for review and comment, a plan for the west side of Dowest Slough (West Side Plan) covering the protocol elements (a planting plan per Protocols 1, 3, 5 and 6) of this condition.

Protocol: The plan shall include, but not be limited to:

1. a detailed grading and planting plan, at a reasonable scale, indicating proposed plant species and sizes. The plan shall include a description of the overall design concept indicating how the plan will achieve the mitigation objectives. This description shall explain how the plan will help screen views of the power plant and maintain and enhance views of open space and the water from the highway and the Casa Medanos residential complex in the area that is north of the Pittsburg-Antioch Highway and west of Arcy Lane.

2. a description of the plan for removing the existing ground water well structure and its surrounding vegetation screening of oleander plants on the north side of the Pittsburg-Antioch Highway.

3. a detailed list of proposed plant species and sizes (i.e., anticipated height and spread at maturity and initial sizes at time of planting) and a description of the suitability of the plants for the site conditions and mitigation objectives. Vegetation selected for landscape screening shall be in accordance with the City of Pittsburg s approved plant list.

4. a minimum of two perspective sketches or photosimulations of views from strategic locations along the Pittsburg-Antioch Highway that illustrate the probable appearance of the view corridor, power plant, and aesthetic landscaping approximately 15 years following startup of operation of the facility.

5. a detailed irrigation plan.

6. detailed maintenance procedures.

The project owner shall provide evidence that the City of Pittsburg Community Development Department and Dow Chemical have been consulted regarding the plan, and attach any recommendations from the City of Pittsburg Community Development Department and Dow Chemical to the plan submitted to the CPM.

The project owner shall coordinate with Dow Chemical during the development of Dow s drainage retention plan for the Dowest Slough area to ensure that the aesthetic enhancement plan will be integrated with Dow s plan and that the mitigation objectives will be accomplished.

If the CPM notifies the project owner that revisions to either the west side plan or the overall plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

The landscaping screening and any other plan features shall not be installed before the plan is approved. The project owner shall notify the CPM when the plan has been implemented and is ready for inspection.

Verification: At least 60 days prior to completion of the retention basin, the project owner shall prepare and submit to the CPM for review and approval, and to Dow Chemical and the City of Pittsburg Community Development Department for review and comment, the aesthetic enhancement plan. If a West Side Plan is prepared, at least 60 days prior to start of power plant construction or other mutually agreed upon date, the project owner shall submit it to the CPM for review and approval, and to Dow Chemical and the City of Pittsburg Community Development Department for review and comment. Following approval of the overall plan by the CPM, the project owner shall implement the plan on a schedule mutually agreed to by the CPM, Dow Chemical, and the project owner. If the project owner prepares the west side plan, the project owner shall

implement that plan within 60 days after approval of the plan. The project owner shall notify the CPM within seven days after implementing either the west side plan or the overall plan that the aesthetic landscape installation is ready for inspection.

ATTACHMENT 1

LIGHTING COMPLAINT RESOLUTION FORM

DELTA ENERGY CENTER Pittsburg, California
Complainant s name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
Description of corrective measures taken: Complainant s signature: _____ Date:
Approximate installed cost of corrective measures: $ Date installation completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct: Plant Manager s Signature:

(Attach additional pages and supporting documentation, as required.)

D. NOISE

The construction and operation of any power plant project will create noise. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the project to sensitive receptors combine to determine whether project noise will cause significant adverse impacts to the environment. In the licensing process, the Commission evaluates whether noise produced by project-related activities will be sufficiently mitigated to comply with applicable noise control laws and ordinances.

SUMMARY OF EVIDENCE

Laws that regulate noise disturbances to neighbors in the project vicinity include the City of Pittsburg General Plan Noise Element and the City of Pittsburg Noise Ordinance. For sensitive noise receptors (residences, schools, hospitals), round-the-clock exposure levels up to 60dBA (Ldn or CNEL) are deemed normally acceptable and levels up to 70 dBA are conditionally acceptable. Staff s **Noise** Table A1 and Table A2, replicated at the end of this section, explain the definitions of these and other noise measurement terms. Under the Pittsburg Noise Element, increases of more than 5 dB above ambient noise levels are deemed significant. The Contra Costa General Plan Noise Element requires that construction activities take place during normal daytime work hours. The City of Antioch General Plan defines daytime hours as 7:00 a.m. to 7:00 p.m. (Ex. 20, pp. 148-149.)

1. Setting

The project site is located in an industrial neighborhood, where industrial activities, trains, and local traffic, are major contributors to the noise environment. (Ex. 1, p. 32; 10/5 RT 261-262.) The nearest sensitive noise receptor is Casa Medanos, a 16-unit residential motel on the south side of the Pittsburg-Antioch Highway, 2,300 feet south of the project site.[156] (Ex. 20, p. 150; 10/5 RT 260.)

[156] Applicant s witness testified that Casa Medanos residents are subjected to a lot of noise. (10//5 RT 261-262.) Casa Medanos is located in a commercially zoned area along the heavily

The next nearest sensitive receptor is a residential neighborhood on the south side of State Highway 4, approximately 4,000 feet south of the site. Other receptors are a residence behind Hazel s Restaurant, 4,500 feet east of the site, and a residential neighborhood in Antioch east of Somersville Road, approximately 5,000 feet east of the site. (*Ibid*.)

2. Potential Impacts and Proposed Mitigation

a. Construction

Applicant conducted a noise survey to predict the potential noise effects during project construction. (Ex. 2, / 8.5.2.2; 105 RT 261-262.) The average noise levels during the loudest construction activities were projected to range between 49 dBA and 56 dBA at the nearest sensitive receptors. (Ex. 1, p. 33.) According to Applicant, these predicted levels are slightly lower than existing daytime noise levels. (*Ibid*.) Staff agreed that although construction activities would likely be audible at the nearest residences, construction noise will not result in significant impacts to the surrounding community.[157] (Ex. 20, p. 151.)

The table below shows the results of Applicant s noise survey:

Average Construction Noise Levels at Nearest Residences (dBA)

Construction Phase	Casa Medanos 2,300 feet	Pittsburg Residences 4,000 feet	Residences east of Somersville Rd. 5,000 feet	Hazel s Restaurant Antioch 4,500 feet
Site Clearing and Excavation	56	51	49	50
Concrete Pouring	45	40	38	39
Steel Erection	54	49	38	39
Mechanical	54	49	47	48
Clean-Up	56	51	49	50

(Source: Ex. 2, Table 8.5-12.)

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traveled Pittsburg-Antioch Highway. Active railroad tracks and State Highway 4, a very busy freeway, are located immediately to the south of this residence. (*Ibid*.)

[157] Construction activities are typically noisier than permissible under local noise ordinances; however the construction phase is temporary. (Ex. 20, p. 151.)

In an effort to reduce disturbance from onsite construction noise, Applicant will limit general construction activities to the daytime hours. (Ex. 1, p. 33.) The City of Pittsburg Noise Element allows higher noise levels for construction during the daytime but prohibits exceptionally noisy construction, such as pile driving and steam blows,[158] between 10:00 p.m. and 7:00 a.m. (*Ibid*.) Applicant will comply with this restriction. (Ex. 2, ⁄ 8.5.3.2.) Applicant will implement a noise complaint process to respond to concerns about noise associated with the project. (Condition **Noise-2**.)

According to Applicant, noise during construction of the linear facilities will be noticeable at residences along those routes; however, the temporary nature of these activities will ensure that no single receptor will be inconvenienced for more than a few days. (Ex. 1, p. 34.) Condition **Noise-8** requires Applicant to restrict noisy construction work to the hours specified in the applicable LORS.

Cal/OSHA requires Applicant to implement measures to protect workers from injury. Hearing protection equipment and other administrative procedures will be utilized to ensure that workers are not adversely impacted by noise associated with construction and operation of DEC.[159] (Conditions **Noise-3** and **Noise-7**.)

b. Operation

Noise during normal baseload operation will be limited through various mitigation measures that include barrier walls, acoustical equipment enclosures, quieter

[158] To clean the steam piping system prior to start-up, it is necessary to route high pressure steam through the system to flush out dirt and debris. (Ex. 20, p. 151.) This flushing process, known as steam blows, can produce noise as loud as 130 dBA at a distance of 100 feet. According to Staff, this noise level would attenuate to 103 dBA, an exceedingly disturbing level, at Casa Medanos. (*Id.*, p. 152.) In mitigation, Applicant will install mufflers on the steam blow piping to reduce this level by 20 to 30 dBA, resulting in 73 to 83 dBA at Casa Medanos. Applicant will also restrict such steam blows to daytime hours. (Ex. 1, p. 34.) Condition Noise-5 requires Applicant to notify neighbors of impending steam blows.

[159] Regulations adopted by the federal Occupational Safety and Health Administration (OSHA) and the state Cal/OSHA protect workers from noise-related health and safety hazards. (29 C.F.R.,⁄1910, et seq.; Cal. Code of Regs, tit. 8,⁄5095 et seq.)

equipment, and rearrangement of features to minimize noise emissions in the direction of receptors. (Ex. 2,/8.5.4.1.1.) According to Applicant s testimony, plant noise level contributions at the sensitive receptors will not exceed 60 dBA-CNEL, which for a steady source equates to a continuous level of just over 53 dBA. (Ex. 1, p. 34.) Staff also indicated that noise emissions are restricted by the Pittsburg Noise Element so that any increase in background noise levels at the sensitive receptors may not exceed 5 dBA. (Ex. 20, p. 153.) Condition **Noise-6** ensures that DEC will adhere to the intended noise limit.

Applicant performed an ambient noise survey to predict the potential impacts on the surrounding community during plant operation. (Ex. 2,/8.5.4.) The results are shown in the following table:

Cumulative Noise Levels During Power Plant Operation

Receptor	Ambient Background Noise Level DBA	Plant Noise Contribution DBA	Cumulative Noise Level dBA	Increase dBA
Casa Medanos Apartments	48	52	53	5
Pittsburg Residences	51	44	52	1
Antioch Residences	46	42	47	1
Hazel s Restaurant	46	43	48	2

(Source: Ex. 2, Table 8.5-15.)

According to Staff, the ambient background levels are based on the lowest nighttime L_{90} levels recorded for each of the receptors, with one exception. (Ex. 20, p. 154.) At Casa Medanos, the lowest measured nighttime L_{90} was 45 dBA. In a typical residential setting, Staff relies on the lowest figure to measure noise increases due to the project. Since the nighttime noise regime surrounding Casa Medanos is heavily dominated by traffic noise, which intermittently increases ambient nighttime noise levels, Staff agreed with Applicant s proposal to average the nighttime L_{90} readings. (*Ibid.*) This approach resulted in an average nighttime noise level of 48 dBA. (*Ibid*.)

To prevent strong individual tonal noises that could result from the various project components, Applicant will design the facility to blend the many noise sources so

that no single noise source will stand out. (Ex. 2,/8.5.4.1.1.1.) Additionally, Applicant will install mufflers to reduce the hissing sound that occurs during the intermittent actuation of steam relief valves. (*Ibid.*) Condition **Noise-6** ensures that no single piece of equipment will stand out as a dominant noise source and that intermittent steam relief noise will be adequately muffled.

Staff reviewed the potential for cumulative noise impacts related to new or existing projects. Neither Staff nor Applicant was aware of any new proposed projects in the site vicinity. The new PDEF is too distant from DEC to create cumulative noise impacts. Staff, therefore, concluded that it was too speculative at the present time to calculate whether cumulative noise impacts would occur from the construction and operation of DEC. (Ex. 20, p. 155.)

COMMISSION DISCUSSION

The evidence demonstrates that traffic noise is so pervasive at Casa Medanos that no significant adverse noise impacts could reasonably be predicted. This residential motel is a nonconforming use within an industrial/commercial area located between the busy Pittsburg-Antioch Highway and the railroad tracks. Since the traffic creates intermittent increases in nighttime noise levels that cannot be measured as steady ambient noise, the Commission accepts Applicant s approach to average the nighttime noise levels in this case. However, the Commission believes the lowest nighttime L_{90} reading is the preferable approach in most other cases.

Applicant s witness, Susan Strachan, testified that residents at Casa Medanos are aware of plans to construct DEC.[160] (10/5 RT 264.) Conditions **Noise-1** and **Noise-2** will require Applicant to notify residents and business entities within one-half mile of the site about potential noise disturbances and to implement a noise

[160] we ve spent a lot of time out there on noise issues, visual issues. And the people see us, and we visit with them. And we ve also done extensive public notification that they were included in to tell them about the project and ways that they could get ahold of us or get more information on the project. (10/5 RT 264:16-23.)

complaint resolution process. Condition **Noise-5** also requires Applicant to notify residents as well as business entities prior to steam blow activity.

Applicant addressed Staff s concerns regarding the project s operating noise levels by incorporating several noise reduction features into the project design. The record indicates that there are no controverted issues regarding the mitigation of potential noise impacts. The Commission is persuaded that the mitigation measures contained in the Conditions of Certification ensure that noise from DEC activities will not result in significant impacts to the environment.

FINDINGS AND CONCLUSIONS

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

1. Construction and operation of DEC and its linear facilities will increase noise levels above existing ambient levels in the surrounding community.

2. Construction noise levels are temporary and transitory in nature and will be mitigated to the extent feasible by sound reduction devices, limiting construction to daytime hours in accordance with local noise control laws and ordinances, and providing notice to nearby residences, as appropriate.

3. As a baseload project, DEC will operate around the clock with the potential to adversely impact the ambient nighttime noise levels at sensitive residential receptors.

4. The nearest sensitive noise receptor is the Casa Medanos residential motel, which is dominated by heavy traffic noise day and night.

5. The lowest *average* nighttime L_{90} value measured at Casa Medanos was 48 dBA.

6. Applicant incorporated several noise reduction measures into the project design to ensure that noise levels associated with project operation are maintained at a level of 53 dBA L_{90} at the Casa Medanos location.

7. This noise level of 53 dBA L_{90} represents an increase of 5 dBA, the significance level established in the City of Pittsburg Noise Element.

8. Applicant will implement measures to protect workers from injury due to excessive noise levels by complying with pertinent Cal/OSHA regulations.

9. Applicant will implement the mitigation measures identified in the Conditions of Certification to ensure that project-related noise levels do not cause significant adverse impacts to sensitive noise receptors.

The Commission, therefore, concludes that with implementation of the following Conditions of Certification, DEC will comply with the applicable laws, ordinances, regulations, and standards on noise control as set forth in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of rough grading, the project owner shall notify all residents and business entities within one-half mile of the site, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report following the start of rough grading a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (see below for example), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- attempt to contact the person(s) making the noise complaint within 24 hours;

- conduct an investigation to determine the source of noise related to the complaint;
- if the noise is project related, take all feasible measures to reduce the noise at its source; and
- submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to complainant s satisfaction.

Verification: Within 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the City of Pittsburg Planning Division and with the CPM documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30 day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE COMPLAINT RESOLUTION FORM

DELTA ENERGY CENTER
(98-AFC-3)

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: _____ dBA Date: _____
Initial noise levels at complainant s property: _____ dBA Date: _____

Final noise levels at 3 feet: _____ dBA Date: _____
Final noise levels at complainant s property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant s signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager s signature: _____

(Attach additional pages and supporting documentation, as required.)

NOISE-3 Prior to the start of project construction, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of rough grading, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 110 dBA measured at a distance of 100 feet. The project owner shall conduct steam blows only during the hours of 8:00 a.m. to 5:00˚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 a description of the steam blow schedule. At least 15 days prior to the first low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5 At least 15 days prior to the first steam blow(s), the project owner shall notify all residents and business entities within one-half mile of the site of the planned steam blow activity, and shall make the notification available to other area residents and business entities 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 (5) days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have notified residents and business entities of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6 Within 30 days of the project first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as well as other appropriate sites. The survey shall also

include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a dominant source of noise. Steam relief valves shall be adequately muffled to preclude noise that draws complaints. If the results from the survey indicate that the project noise levels are in excess of 52 dBA measured at the property line of the Casa Medanos residential motel, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the City of Pittsburg Planning Division and the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 The project owner shall conduct an occupational noise survey to identify the noise hazard areas in the facility. The survey shall be conducted within 30 days after the facility is in full operation, and shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095 5100 (Article 105) and Title 29, Code of Federal Regulations, Part 1910. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report 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 also submit the report to OSHA and Cal-OSHA, as appropriate.

NOISE-8 Noisy construction work (that which causes offsite annoyance) shall be restricted to the times of day delineated below:

Within the Pittsburg City Limits:	7:00 a.m. to 10:00 p.m.
Within the Antioch City Limits:	7:00 a.m. to 7:00 p.m.
Within unincorporated areas of Contra Costa County:	7:00 a.m. to 7:00 p.m. weekdays, and 8:00 a.m. to 5:00 p.m. weekends

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE Table A1

FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

Noise levels can be measured in a number of ways. One common measurement, the equivalent sound level (L_{eq}), is the long-term A-weighted sound level that is equal to the level of a steady-state condition having the same energy as the time-varying noise, for a given situation and time period. (See **Noise**: Table A1, below.) A day-night (L_{dn}) sound level measurement is similar to L_{eq}, but has a 10 dB weighting added to the night portion of the noise because noise during night time hours is considered more annoying than the same noise during the day.

Definition of Some Technical Terms Related to Noise

Terms	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dB	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level L_{eq}	The average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to levels in the evening from 7 p.m. to 10 p.m. and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn}	The Average A-Weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: California Department of Health Services 1976; Reference: Exhibit 20, p. 163.

In order to help the reader understand the concept of noise in decibels (dBA), **Noise** Table A2 has been provided to illustrate common noises and their associated dBA levels.

NOISE Table A2

Typical Environmental and Industry Sound Levels			
Source and Given Distance from that Source	A-Weighted Sound Level in Decibels (dBA)	Environmental Noise	Subjectivity/ Impression
Civil Defense Siren (100)	140-130		Pain Threshold
Jet Takeoff (200)	120		
	110	Rock Music Concert	Very Loud
Pile Driver (50)	100		
Ambulance Siren (100)	90	Boiler Room	
Freight Cars (50)			
Pneumatic Drill (50)	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100)	70		Moderately Loud
Vacuum Cleaner (100)	60	Data Processing Center Department Store/Office	
Light Traffic (100)	50	Private Business Office	Quiet
Large Transformer (200)	40		
Soft Whisper (5)	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

Source: Peterson and Gross 1974; Reference: Exhibit 20, p. 164.

SUBJECTIVE RESPONSE TO NOISE

The adverse effects of noise on people can be classified into three general categories:

- ¥ Subjective effects of annoyance, nuisance, dissatisfaction.
- ¥ Interference with activities such as speech, sleep, and learning.
- ¥ Physiological effects such as anxiety or hearing loss.

E. SOCIOECONOMICS

The socioeconomics analysis evaluates the effects of project-related population changes on local schools, medical and protection services, public utilities, and other public resources, as well as the fiscal and physical capacities of local government to meet these needs. The analysis also considers whether any potential project-related impacts raise concerns relevant to the issue of environmental justice.

The construction phase of project development is typically the focus of the analysis because of the potential influx of workers into the area. Socioeconomic impacts are considered significant if a large influx of non-resident workers and dependents move to the project area, increasing demand for community resources that are not readily available.

SUMMARY OF EVIDENCE

1. Setting

The project will be located in eastern Contra Costa County in the industrialized northeast portion of the City of Pittsburg at the boundary with the City of Antioch. Applicant s demographic study area included Contra Costa, Solano, and Alameda Counties. (Ex. 50, p. 2.) This three-county area is highly urbanized, with numerous communities located within an hour s commuting distance to the project. (Ex. 20, p. 248.) The most immediate project-related socioeconomic impacts will occur in the Pittsburg and Antioch communities. (*Ibid*., Ex. 50, p. 2.)

2. Employment

Applicant expects construction to begin in mid-2000 and end in mid-2002 for a total of 24 months. (Ex. 20, pp. 252-253; Ex. 50 at p. 2.) The peak construction

period will occur from January to September 2001 and peak employment will reach 575 employees in mid-2001. (*Ibid*.) After construction, Applicant will hire 24 permanent employees to operate the project. (Ex. 50, p. 3.)

California Unions for Reliable Energy (CURE), an intervenor in this proceeding, sponsored the testimony of Michael Yarbrough, the Business Manager for the International Brotherhood of Electrical Workers, Local 302. (Ex. 64.) Mr. Yarbrough confirmed that DEC has a construction labor agreement with the State Building and Construction Trade Council of California to provide labor for project construction and maintenance. (Ex. 64, p. 2.) The workforce will be drawn from craft union members in the three-county region where thousands of highly skilled construction and utility workers are eligible for employment.[159] (Ex. 64, p. 2; 11/18 RT 286; Ex. 20, pp. 248-249.)

The labor agreement provides for an adequate wage and benefit package that allows the workers to remain in their communities, spend their earnings locally, and support apprenticeship training programs for qualified, local residents at no cost to taxpayers. (Ex. 64, p. 2.) In addition to the apprenticeship programs, the unions also provide journeyman upgrade and certification programs that are designed to provide advanced training in specialized areas and keep members apprised of changing materials and technologies. (*Id*., at p. 3.)

Condition **SOCIO-1** requires Applicant to recruit employees from within Contra Costa County first and Bay Area Counties next before hiring employees from outside the area.

[159] Permanent employees will also be recruited locally. (Ex. 20, p. 262; 11/18 RT 351.)

3. Potential Impacts

a. Housing and Schools

Applicant anticipates that most of the construction labor force will commute one hour or less each way to the job site and will not, therefore, adversely impact housing or schools.[160] (Ex. 50 at p. 3; 11/18 RT 284.) DEC will pay a one-time developer fee of $5,890 to the Pittsburg Unified School District.[161] In addition, Staff estimated that $1.75 to $2.25 million from annual property taxes paid by DEC would go to school districts in Contra Costa County.[162] (*Ibid.*)

b. Public Services

Construction-related demands on police, fire, medical, and other emergency services will be insignificant. (Ex. 20, p. 260.) See the **Worker Safety** section of this Decision, which discusses onsite fire protection facilities. The Contra Costa County Fire Protection District (Fire District) will receive a one-time fire facilities fee collected by the City of Pittsburg and assessed at $0.15 per square foot for each structure on the site. (*Ibid.*)

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[160] Temporary housing is available in motels and hotels in the Pittsburg-Antioch area and permanent housing demand can be accommodated by existing vacancies. (Ex. 20, p. 260.) Construction workers do not typically relocate their families for short-term construction activities. (*Id.*, p. 261.)

[161] Developer fees in Pittsburg are assessed at $0.31 per square foot for commercial or industrial development. DEC s square footage is estimated at 19,000 square feet. Thus, the fee is calculated at $5,890. (Ex. 20, p. 261.) Developer fees can be spent on school construction and other school facility improvements. (*Ibid.*) The project s linear facilities in Antioch are not subject to this assessment and, therefore, there is no developer fee available to the Antioch Unified School District. (*Ibid.*)

[162] Project-related revenues to the local school districts are limited to property taxes and statutory facility fees collected at the time the building permit is approved. [Gov. Code,⁄65996 (amended by SB 50, Stats. 1998).]

In June 1999, the Fire District notified both the PDEF and DEC projects that approximately $1 million for new firefighting equipment would be required to provide emergency response services to both power plants. (Ex. 52, p. 1.) DEC is located within the Los Medanos 3 Redevelopment District Area (RDA), which established a revenue sharing mechanism to provide the Fire District with property tax benefits from new developments.[163] (Ex. 52, p. 1.) According to Applicant, the RDA will collect approximately $3.5 to $4.5 million per year in property taxes from DEC.[164] (11/18 RT 285-286.) In fiscal year 2003-2004, the Fire District will receive about $718,000 from these tax proceeds. (Ex. 52, p. 2.) With valuation over time, the property tax benefit from DEC will result in direct funding to the Fire District in excess of $1 million per year. (11/18 RT 285-286.) Both Applicant and Staff found this revenue stream would provide the District with more than sufficient funding to support the necessary level of fire protection to the power plant service areas. (Ex. 52, p. 2; Ex. 20, p. 261.)

c. Local Economy

During the construction period, DEC expects to spend $5 to $10 million on local purchases of materials and supplies, which will generate sales tax at a rate of 8.25 percent in Contra Costa County. (Ex. 50, p. 3.) According to Applicant, the revenue from sales tax is estimated at $412,500 to $825,000, of which about $50,000 to $100,000 will go to the city at the point of sale. (*Ibid*.) The construction payroll of $36 million and the annual operation payroll of $1.2 million will generate additional economic benefits from the income multiplier effect in the local community. (*Ibid*.) Applicant also indicated that local economic benefits

[163] The Los Medanos 3 RDA established a tax revenue sharing mechanism whereby 55 percent goes to Contra Costa County and 45 percent remains in Pittsburg for infrastructure improvement within the redevelopment district. (Ex. 50, p. 3.) The Fire District will receive 55 percent of the property taxes going to the county. (*Ibid*.)

[164] The project s estimated capital cost is $350-$450 million. The county property tax rate of one percent will generate tax revenues of $3.5 to $4.5 million annually. (Ex. 50, p. 3.)

would continue to accrue from the project s annual operations budget of $10-$15 million. (*Ibid.*)

4. Environmental Justice

The U. S Environmental Protection Agency (EPA) defines environmental justice as:

> The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people, including racial, ethnic, or economic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. (EPA, *Final Guidance for Incorporating Environmental Justice Concerns in EPA s Compliance Analyses*, April 1998.)

In 1994, President Clinton issued Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), which directed the U. S. Environmental Protection Agency (EPA) and all other federal agencies to develop environmental justice strategies that identify and address disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low income populations. [165] (Executive Order 12898, February 11, 1994.)

Both Staff and Applicant agree that the Executive Order by its own terms is a federal policy applicable only to federal agencies. (11/18 RT 300-301, 304-305.)

[165] According to Applicant, this federal initiative was modeled after Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, or national origin in programs or activities for recipients of federal financial assistance. (Ex. 51, p. 2; 11/18 RT 301.) EPA regulations implementing Title VI prohibit unjustified discriminatory effects under federally assisted programs. [40 C.F.R.,/7.35(b).]

Currently, there is no analogous state policy on environmental justice nor does the California Environmental Quality Act (CEQA) provide any guidance in this regard. Nevertheless, the Commission has previously indicated that environmental justice analyses should be conducted, if appropriate, on a case-by-case basis.[166] Staff and Applicant, therefore, developed comprehensive analyses on environmental justice in response to concerns raised by some of the Intervenors in this case.

The analyses relied on two federal documents that provide some measure of guidance to agencies required to implement the Executive Order. The first document is the *Environmental Justice Guidance Under the National Environmental Policy Act* (CEQ Guidance), published by the Council on Environmental Quality, which has oversight of federal government compliance with both the National Environmental Protection Act (NEPA) and the Executive Order. In addition, the EPA s *Final Guidance for Incorporating Environmental Justice Concerns in EPA s Compliance Analyses* (EPA Guidance) serves as a guidance to incorporate environmental justice goals into EPA s preparation of environmental impacts statements under NEPA. (EPA Guidance, ⁄ 1.0, Purpose.)

According to Applicant, the environmental justice analytical process has three key phases: (1) focused outreach to and involvement of the minority and low-income population in the decision-making process; (2) a screening-level analysis to determine the potential for environmental justice issues; and (3) if warranted

[166] The Committee was concerned about Applicant s assertion that Commission compliance with the Executive Order is *voluntary* and asked the parties to brief the issue. There is no dispositive ruling on whether state agencies such as the air districts, delegated by EPA to issue federal Prevention of Significant Deterioration (PSD) permits, are required to satisfy other EPA requirements. This issue affects the Commission because the PSD permit is evaluated and issued in the context of the Commission s certification process. In view of these ambiguities, the Commission believes there is sufficient nexus between the Commission s certification process and the air districts PSD responsibilities to adopt a policy requiring environmental justice analyses on a case-by-case basis using the federal guidance documents. (See, discussion at 11/18 RT 316-319.)

by the screening, a more detailed analysis of the distribution of impacts. (Ex. 51, p. 4; see, EPA Guidance,∥4.0-4.2; CEQ Guidance, pp. 6-11.)

Staff noted that the certification process already includes public outreach and an open public process to facilitate public comment and participation, as well as a duty under CEQA to examine cumulative environmental impacts. (Ex. 66.) Both Staff and Applicant submitted documentation of their extensive efforts to notify residents, governmental agencies, local community organizations, labor organizations, business groups, and the media about the proposed project and the public events held by the Commission to facilitate public participation. (Ex. 51, pp. 4-5; Ex. 53; Ex. 20, pp. 259-260; Ex. 66.)

The screening analysis includes the following criteria to determine whether environmental justice issues must be addressed:

> 1. <u>There must be a protected population in the zone of impact of the project</u>. Agencies are first required to address whether or not a project or agency action affects a minority/low income population. Under both CEQ and EPA guidance documents, this involves a screening analysis that uses census data to identify whether the population in the affected area is (1) more than 50 percent minority/low income; or (2) is the minority/low income population in the affected area meaningfully greater than that of the general population or other appropriate unit of geographical analysis. (EPA Guidance, ∕2.1.1.) In addition, agency analysts should be watchful for high concentration pockets of minority populations [that] are evidenced in specific geographic areas. (*Ibid*.)
>
> 2. <u>There must be an environmental impact that is high and adverse</u>. The federal guidance documents clearly intend this to apply to both health effects and environmental effects in the broader context. (CEQ Guidance, p. 20.) However, the federal guidance indicates that high and adverse effects are the same as significant effects in a NEPA context. (CEQ Guidance, p. 20; EPA Guidance,∕3.2.2.) This is essentially the same as a significant adverse impact in a CEQA context, and is indicative of the relative intensity of the impact. (Ex. 51, p. 4.)
>
> 3. <u>The high and adverse impact must disproportionately affect minority/low income persons</u>. In effect, the environmental effect (or health hazard) must appreciably exceed the risk rate or impact on the general

> population or other appropriate comparison group. (CEQ Guidance, p. 20.) The CEQ Guidance also states that a disproportionately high and adverse impact can occur from cumulative or multiple adverse exposures from environmental hazards, thus emphasizing the importance of cumulative impact analyses. (*Ibid.*)

Staff s witness, Ms. Stennick, testified that the affected population is not predominantly minority or low-income. (11/18 RT 313, 316.) First, Staff defined the affected area as a five-mile radius from the project based on the potential for cumulative air quality (including toxic air contaminants) impacts in the vicinity.[167] (*Id.* at pp. 315, 338.) Using data from the 1990 census as recommended by the Guidance, Staff found that the population living within this radius is less than 50 percent minority, and far less than 50 percent low-income. (Ex. 20, pp. 256-260, Exs. 51, 61.)

Since the 1990 census data were challenged by several Intervenors as outdated, Staff acquired more recent demographic projections that confirmed its prior conclusions: (1) a clear majority of the population within the five-mile radius (58 percent) are non-minority (Ex. 61, Table 2); (2) the majority of all census tracts within (or partially within) the five-mile radius are non-minority (*Ibid*.); (3) the low-income population in the affected area is far below 50 percent (Ex. 20, Table 8); and (4) the minority/low-income population within the affected area is not meaningfully greater than that of the general population, including that of the geopolitical unit of Pittsburg (64 percent Hispanic/non-white). (Ex. 61, Table 3.)

Ms. Lagana for Intervenor CAP-IT implied during cross-examination of Staff s and Applicant s witnesses that the affected area contained within the five-mile radius was too small, and that Staff should have included the entire geopolitical unit of the City of Pittsburg. (11/18 RT 344 et seq.) Staff disagreed because focusing on the geopolitical unit, without regard to impact, would have artificially

[167] Staff s air dispersion modeling indicated that the area of greatest potential air quality impact is within roughly 5 miles of the project. (See, Ex. 55, pp. C-10, C-11, C-12; Ex. 20, pp. 34-35 [maximum impact points for toxic chemicals].)

inflated the minority population, a practice inconsistent with the federal guidance.[168] (Ex. 61, p. 2; EPA Guidance, ⁄ 2.1.1, CEQ Guidance, p. 19.) In comparing the overall population within the affected area to the population in the City of Pittsburg, however, Staff found that the demographic data do not reveal a significantly greater minority population in the affected area than in Pittsburg as a whole. In fact, the minority composition of Pittsburg is greater that that of the affected area.[169] (11/18 RT 315.)

Other questioning by Intervenors Californians for Renewable Energy (CRE) and Community Health First (CHF) suggested that Staff s affected area radius was too broad, and should have been more tightly drawn. (11/18 RT 341-343.) In public comment, Mr. MacDonald for Intervenor CHF postulated that the EPA Guidance requires identification of populations smaller than the census tract level, and that even three individuals could constitute a pocket that defines an environmental justice issue. (11/18 RT 369-370.)

According to Applicant s witness, Mr. Crisp, the characteristics of a population in any particular geographic or political jurisdiction have little to do with whether there s an issue of environmental justice; the data must be relevant to the project s potential impact area. (*Id.* at p. 348.) An inquiry of demographics at the sub-census tract level performed by Mr. Crisp uncovered no evidence of highly concentrated protected populations at that level. (11/18 RT 342-343.)

Regarding the second element of the analysis (a high and adverse impact), both Staff and Applicant determined that the project does not constitute a high and adverse environmental impact or hazard, in either a direct or cumulative

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[168] Rather than focusing on an arbitrary geopolitical unit, Staff believes the affected area should be interpreted as that area which the proposed project will or may have an effect on. (EPA Guidance, ⁄ 2.1.1; Ex. 61, p. 2.)

[169] Staff compared the population in the affected area with the population characteristics of the City of Pittsburg based on the EPA Guidance which states that demographic comparison to the next larger geographic area should be reviewed to place population characteristics in context. (Ex. 61, p. 2.)

context. (11/18 RT 313 [Stennick], 293, 297 [Crisp].) According to Staff and Applicant, the project does not present any significant environmental risk to *any* population.[170] (*Ibid.*)

As discussed in the **Air Quality** section, the project emits PM_{10} and ozone presursors that could potentially create significant cumulative impacts because the air district is not in attainment for the federal ozone or state 24 hour PM_{10} standards. Staff performed a worst-case cumulative impacts analysis for PM_{10} and NO_2, including the combined worst-case emissions of DEC, the PDEF project, and the existing operation of the two Southern power plants. (Ex. 55.) The modeling results for DEC indicated that for both PM_{10} and NO_2, the potential impacts were well below state and federal air quality standards. (Ex. 55, pp. C-10, C-11, C-12.) Staff notes that these *insignificant* impacts were found to occur immediately adjacent to the DEC site and not in residential areas. (*Ibid.*) Staff, therefore, concluded that the maximum PM_{10} concentrations from the four modeled facilities do not overlap and there are no significant cumulative impacts from criteria pollutants. (11/18 RT 132-140.)

Staff asserts this conclusion is supported by project compliance with BAAQMD s regulatory program requiring emissions offsets that, as a matter of law, will reduce the project s potential contribution to cumulative effects to levels of insignificance under CEQA.[171] (Staff 12/3 Brief on Socioeconomics et al.)

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[170] Ms. Stennick testified that even if the entire five-mile radius constituting the affected area were comprised of an entirely minority/low-income population, Staff would not find high and adverse impacts because, in this case, the potential project-related impacts are mitigated to levels that are less than significant. (11/18 RT 321-322.)

[171] A lead agency may determine that a project s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plant, air quality plan, integrated waste management plan) within the geographic area where the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources . [Cal. Code of Regs., tit. 14,⁄15064(I)(3).]

Regarding public health (i.e., emissions of toxic air contaminants or TACs), standard risk assessments were performed by Applicant, Staff, and BAAQMD. The calculations indicated that the potential risk for cancer or other health effects would be *de minimis,* not cumulatively considerable, and will not contribute a significant cumulative impact. (See **Public Health** section of this Decision.)

Regarding the third element of the environmental justice analysis (whether project effects fall disproportionately on a minority/low-income population), Staff and Applicant determined there is no disproportionate impact on minority/low-income populations.[172] (11/18 RT 313 [Stennick]; 139 [Crisp].) According to Applicant, since the minority/low-income population in the affected area is less than 50 percent and the project will not result in adverse impacts to public health or the environment, there are no disproportionate impacts to evaluate. (Ex. 51, p. 10.)

5. Public Comment

Mr. MacDonald, who represented Intervenor CHF, presented testimony that he is a Trustee of the Pittsburg Unified School District and that he voted for Resolution 99-32, adopted by the School District on October 13, 1999. (Ex. 69.) This Resolution asks the EPA to declare Pittsburg an Environmental Justice Community. Mr. MacDonald also presented public comment indicating his view that BAAQMD s programs are unfair to minorities and low-income populations. (11/18 RT 367 et seq.) As mentioned previously, Mr. MacDonald argued that the census tract data should have been disaggregated to smaller units to better identify the affected minority populations. (*Id.* at p. 369.)

[172] Mr. Crisp performed a more detailed analysis by examining the demographics in the footprint of the potential air quality impact area; specifically, the highest 24-hour average PM_{10} footprint, the highest annual average PM_{10} footprint area, and the highest annual average NO_2 footprint area and found that the population in each of these areas is less than 50 percent minority/low-income. (11/18 RT 298, 339.)

Mr. Bill Forrest presented comment indicating that he was concerned about potential disparate impact on minority communities from project-related activities. He wanted assurance that the project would not cause cancer or other ill effects. (11/18 RT 352 et seq.)

Mr. Darrell Turner, Political Action Chair for the NAACP, Northern California Section of the State Conference, presented comment stating that his organization is satisfied the project will not cause negative effects to the minority community. (11/18 RT 100.) Mr. Turner also believes that the project will provide economic benefits to the Pittsburg community. (*Ibid.*)

Mr. Tony Baca, Vice President of the Central Labor Council of Contra Costa County, indicated that his organization is satisfied that the project will provide economic benefits to the community. (11/18 RT 101.)

Mr. William Leroy, a local resident, was concerned that the project would cause pollution detrimental to public health. He also objected that city infrastructure facilities would provide services to the project at taxpayer expense. (11/18 RT 102 et seq.)

COMMISSION DISCUSSION

The evidence is uncontroverted that there will not be a large influx of construction workers to the Pittsburg-Antioch area. As a result, there will not be any significant impacts on schools, housing, medical, or emergency services in the Pittsburg-Antioch area. The project represents major economic benefits to the community from the property and sale tax revenues that will accrue over the life of the project. Property taxes will go to the City of Pittsburg to pay for infrastructure improvements in the Los Medanos 3 Redevelopment District Area.

Regarding the issue of environmental justice, the Commission believes it is appropriate to rely on the federal guidance documents in developing an environmental justice analysis protocol at the state level. As stated above, we consider the air districts PSD authority a sufficient nexus with the certification process to warrant this review, as appropriate, on a case-by-case basis. The Commission is satisfied that the environmental justice analysis in this case was consistent with the guidance documents. Although the Intervenors claimed there are pockets of minority/low-income populations in the affected area, they did not present credible evidence to show that a smaller demographic unit would have affected the analysis. Nor did they show that the project would result in significant impacts to any population within the affected area. Accordingly, we find that the project does not raise concerns of environmental justice.

Public comment expressing fears about cancer or other health effects from project operation were considered in our review. However, the evidence presented by expert witnesses clearly establishes that the project will comply with the applicable laws and regulatory programs that are designed to protect the public health of the most sensitive receptors.

FINDINGS AND CONCLUSIONS

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

1. DEC has agreed to hire members of the State Building and Construction Trade Council of California to construct, operate, and maintain the plant.

2. There will be no major influx of construction workers and their families to the area because DEC will recruit its workforce from thousands of eligible skilled construction workers within one hour commuting distance of the project.

3. Project-related socioeconomic impacts on schools, housing, medical, and emergency services will be insignificant.

4. State Building and Construction Trade Council of California will provide apprenticeship training programs for qualified, local residents at no cost to taxpayers.

5. DEC will pay a one-time developer fee of $5,890 to the Pittsburg Unified School District.

6. Approximately $1.75 to $2.25 million from annual property taxes paid by DEC will go to school districts in Contra Costa County.

7. The Contra Costa County Fire Protection District (Fire District) will receive a one-time fire facilities fee assessed at $0.15 per square foot for each project structure.

8. The Fire District will receive property tax benefits paid by DEC to the Los Medanos 3 Redevelopment District at approximately $1 million per year over the life of the project, providing more than sufficient funding to support the necessary level of fire protection to both DEC and PDEF.

9. During construction, DEC will spend $5 to $10 million in the local area and the project will generate $412,500 to $825,000 in sales tax.

10. The construction payroll of $36 million and the annual operation payroll of $1.2 million will generate economic benefits in the local community.

11. Applicant and Staff engaged in extensive public outreach activities to facilitate public participation in the certification process.

12. The affected area potentially subject to project-related impacts lies within a five-mile radius around the site.

13. The affected population within the five-mile radius and within the footprint of the highest concentrations of air contaminants (which are below levels of significance) is not predominately minority or low-income.

14. The project does not present a high and adverse impact, either directly or cumulatively, to the environment or public health.

15. There is no disproportionate impact from project-related activities on minority or low-income populations.

16. There is no persuasive evidence of environmental justice issues in this case.

17. Implementation of the Conditions of Certification will ensure that project-related activities do not impose any significant adverse socioeconomic impacts.

The Commission, therefore, concludes that with implementation of the Conditions of Certification, the project will conform with all applicable laws, ordinances, regulations, and standards relating to socioeconomics as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Contra Costa County first, and Bay Area Counties second unless:

- to do so will violate federal and/or state statutes;
- the materials and/or supplies are not available; or
- qualified employees for specific jobs or positions are not available; or
- there is a reasonable basis to hire someone for a specific position from outside the local area.

Verification: At least 60 days prior to the start of construction, the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the Energy Commission CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months. The Energy Commission CPM shall review and comment on the submittal as needed.

SOCIO-2 The project owner shall pay the statutory school facility development fee and fire facilities fee as required at the time of filing for the in lieu building permit with the City of Pittsburg Building Department.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

APPENDICIES

AIR QUALITY

FEDERAL

The Federal Clean Air Act, 42 U.S.C. sections 7401 et. seq., requires any new major stationary sources of air pollution and any major modifications to major stationary sources to obtain an air pollution permit before commencing construction. This process is known as New Source Review (NSR). Its requirements differ depending on the attainment status of the area where the major facility is to be located. Prevention of Significant Deterioration (PSD) requirements apply in areas that are in attainment of the national ambient air quality standards. The Non-attainment area NSR requirements apply to areas that have not been able to demonstrate compliance with national ambient air quality standards. The entire program, including both PSD and Non-attainment NSR permit reviews, is referred to as the federal NSR program.

Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in the Code of Federal Regulations 40, part 70. A Title V permit contains all of the requirements specified in different air quality regulations which affect an individual project.

The U.S. Environmental Protection Agency (EPA) has reviewed and approved the Bay Area Air Quality Management District s (BAAQMD) regulations and has delegated to the BAAQMD the implementation of the federal PSD, Non-attainment NSR, and Title V programs. The BAAQMD implements these programs through its own rules and regulations, which are, at a minimum, as stringent as the federal regulations.

STATE

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

The state s Air Resources Board (ARB) promulgates state-level ambient air quality standards, which are, in general, more stringent than the national ambient air quality standards. Table 5.2-2 in the Application for Certification (AFC) presents a summary of the current national and state ambient air quality standards.

LOCAL

The proposed facility is subject to various BAAQMD rules and regulations. Regulation 2, Rule 2 is the more relevant local air quality rule for this project. This rule, entitled New Source Review, applies to all new and modified stationary sources. It defines requirements related to Best Available Control Technology (BACT), offsets, emission calculation procedures to estimate bankable emission reduction credits (ERCs), and requirements for the federal acid rain program.

A more discussion of the applicable rules and regulations can be found in section 8.1, regulatory setting of the AFC and data responses. An in-depth discussion how the Delta Energy Center will comply with all applicable rules and regulations is provided in the BAAQMD s Final Determination of Compliance (FDOC).

ALTERNATIVES

The following laws, ordinances, regulations or standards that pertain to project alternatives are listed below.

Public Resources Code, section 25540.6(b).

Title 20, California Code of Regulations, section 1765.

California Environmental Quality Act, Guidelines.

Title 14, California Code of Regulations, sections 15126.6(a) et. seq.

BIOLOGICAL RESOURCES

FEDERAL

The Endangered Species Act of 1973 (16 U.S.C.,⁄1531 et seq.), and implementing regulations, (50 C.F.R.⁄17.1 et seq.), designate and provide for protection of threatened and endangered plants and animals and their critical habitat.

Migratory Bird Treaty Act (16 U.S.C.⁄701-718) and implementing regulations (50 C.F.R.) Subchapter B (⁄10.1-24.12)provides protection for migratory birds.

STATE

California Native Species Conservation and Enhancement Act, (Fish & G. Code,⁄1750 et seq.), mandates as state policy, maintenance of sufficient populations of all species of wildlife and native plants and the habitat necessary to ensure their continued existence at optimum levels.

California Endangered Species Act, (Fish & G. Code,⁄2050 et seq.), protects California s endangered and threatened species. The implementing regulations, (Cal. Code Regs., tit.14,⁄670.5), lists animals of California declared to be threatened or endangered.

Native Plant Protection Act (Fish & G. Code,⁄1900 et seq.), establishes criteria for determining if a species, subspecies, or variety of native plant is endangered or rare and regulates the taking, possession, propagation, transportation, exportation, importation, or sale of endangered or rare native plants.

Fish and Game Code, section1603 requires that any person planning to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by the department, or use any material from the streambeds, must notify the department prior to such activity so that the department can carry out its mandate by proposing measures necessary to protect the fish and wildlife.

Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibit the taking of birds, mammals, reptiles and amphibians, and fish, respectively, listed as fully protected in California.

Fish and Game Code, section 1900 et seq., gives CDFG authority to designate state endangered and rare plants and provides specific protection measures for identified populations.

Fish and Game Code, section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act except as provided for under federal rules and regulations.

CULTURAL RESOURCES

FEDERAL

Federal Guidelines for Historic Preservation Projects: The US Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary s standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office, refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.

Section 106 of the federal guidelines sets forth procedures to be followed for determining eligibility for nomination, the nomination, and the listing of cultural resources in the National Register of Historic Places. The eligibility criteria and the process are used by federal, state and local agencies in evaluating the significance of cultural resources. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the State Register of Historic Resources.

Executive Order 11593, Protection of the Cultural Environment, May 13, 1971, (36 Federal Register, 8921) orders the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.

American Indian Religious Freedom Act; Title 42 United States Code, Section 1996 protects Native American religious practices, ethnic heritage sites, and land uses.
Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code Section 3001, *et seq.* defines cultural items , sacred objects , and objects of cultural patrimony ; establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.

STATE

Public Resources Code, Section 5020.1 defines several terms, including the following:

> (j) Historical resource includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering,

scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

(k) Substantial adverse change means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.

Public Resources Code, Section 5024.1 establishes a California Register of Historic Places; sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures.

Public Resources Code, Section 5097.5 states that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public land is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority or public corporation, or any agency thereof.

Public Resources Code, Section 5097.98 defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials. This section also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.

California Environmental Quality Act (CEQA) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

Public Resources Code Section 21083.2 states that the lead agency determines whether a project may have a significant effect on unique archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the applicant s cost of mitigation; sets time frames for excavation; defines unique and non-unique archaeological resources ; and provides for mitigation of unexpected resources.

Public Resources Code Section 21084.1 -- indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a historic resource and describes what constitutes a significant historic resource.

CEQA Guidelines, Title 14, California Code of Regulations, section 15126.4(b) prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project s impact on a historical resource; discusses documentation as a mitigation measure, and discusses mitigation through avoidance of damaging effects on any historical resource of an

archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

CEQA Guidelines, section 15064.5 defines the term historical resources, explains when a project may have a significant effect on historic resources, describes CEQA s applicability to archaeological sites, and specifies the relationship between historic resources and unique archaeological resources .

Penal Code, Section 622 1/2 -- Anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

CEQA Guidelines, Appendix G, section V lists questions that are relevant to evaluating a project s impacts on archaeological, historic, and paleontological resources.

California Health and Safety Code Section 7050.5. If human remains are discovered during construction, the project owner is required to contact the county coroner.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies.

CONTRA COSTA COUNTY

One of the goals in the Contra Costa County General Plan (Contra Costa County 1996) is to identify and preserve important archaeologic and historic resources within the county. The policies related to this goal and set forth in the plan are as follows:

1. Areas which have identifiable and important archaeologic or historic significance shall be preserved for such uses, preferably in public ownership.

2. Buildings or structures that have visual merit and historic values shall be protected.

3. Development surrounding areas of historic significance shall have compatible and high quality design in order to protect and enhance the historic quality of the area (Contra Costa 1996).

CITY OF PITTSBURG

The General Plan for the City of Pittsburg (Pittsburg 1998) sets forth goals related to cultural resources. The relevant sections are as follows:

A. To encourage the preservation, protection, enhancement and use of structures that represent past eras, events and persons important in history, or which

provide significant examples of architectural styles of the past, or are landmarks in the history of architecture, or which are unique and irreplaceable assets to the city and its neighborhoods, or which provide for this and future generations, examples of the physical surroundings in which past generations lived.

B. To encourage the preservation of varied architectural styles which reflect the cultural, social, economic, political, and architectural phases of the city s history.

C. To provide for the educational and cultural enrichment of this and future generations by fostering knowledge of our heritage.

CITY OF ANTIOCH

Staff for the City of Antioch indicated that Antioch does not have written ordinances or guidelines concerning the protection of cultural resources. City planning staff indicated they typically rely on environmental documentation provided by project developers (Bendorff 1999a). However, the City has recently requested that a number of conditions be added to the PSA regarding the natural gas pipeline to be constructed as part of the project (Bendorff 1999b). One of those conditions states

> Portions of the project may disturb archaeological remains, particularly in the City s riverfront area. Should remains be uncovered, work shall be halted and proper protocol followed regarding these remains.

EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES

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

LOCAL

No local or county ordinances apply to power plant efficiency.

FACILITY DESIGN

The applicable LORS are contained in the Application for Certification (AFC), in Section 9 and Appendices 9A through 9G (DEC 1998a). A summary of these LORS include: Title 24, California Code of Regulations, which adopts the current edition of the CBC as minimum legal building standards; the 1998 CBC for design of structures; the 1996 Structural Engineers Association of California s Recommended Lateral Force Requirements, for seismic design; ASME-American Society of Mechanical Engineers Boiler and Pressure Vessel Code; and NEMA-National Electrical Manufacturers Association.

MECHANICAL LORS AND DESIGN CRITERIA

The application (DEC 1998a, Appendix 9C) lists and describes the mechanical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate laws, ordinances, regulations, and standards (LORS). This list indicates the codes, standards, and design criteria appropriate for such a project.

The AFC (DEC 1998a, Appendix 9D) lists and describes the electrical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely assure the project's electrical systems are designed to the appropriate codes and standards.

GEOLOGY

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FEDERAL

There are no federal LORS for geological hazards and resources, or grading and erosion control. The United States Bureau of Land Management (BLM) requires an excavation permit for excavations and grading on land under their jurisdiction. The DEC project is not located on lands under the jurisdiction of the BLM. Therefore, there are no federal LORS with respect to geological hazards or resources, or paleontological resources, that are applicable to this project.

STATE AND LOCAL

The California Building Code (CBC) 1998 edition is based upon the Uniform Building Code (UBC), 1997 edition, which was published by the International Conference of Building Officials. The CBC is a series of standards that are used in the investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33) that were based upon the UBC that includes supplemental standards specific to California. The CBC has been adopted by the City of Pittsburg and Contra Costa County and supplements their grading and construction ordinances.

The California Environmental Quality Act (CEQA) Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project s environmental impacts. Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geological hazards.

Sections (X) (a) and (b) pose questions about the project s effect on mineral resources.

The Standard Procedures, Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources (Society of Vertebrate Paleontology) are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1994 by a national organization of vertebrate paleontologists (the Society of Vertebrate Paleontologists).

HAZARDOUS MATERIAL MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III and Clean Air Act of 1990 established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The Acts (codified in 40 C.F.R., section 68.115, part F) require the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of these Acts are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Health and Safety Code, section 25534 directs facility owners, storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).

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

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 Government Code, section 65850.2 restricts the issuance of a certificate of occupancy permit to any new facility involving the handling of acutely hazardous materials until the facility has submitted an RMP to the administering agency with jurisdiction over the facility.

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. Article˚80 was extensively revised in the latest (1994) edition. These articles contain requirements that are generally similar to those contained in the Health and Safety Code. The UFC does, however, contain unique requirements for secondary containment, monitoring, and treatment of toxic gases emitted through emergency venting. These unique requirements are generally restricted to extremely hazardous materials.

The California Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

LAND USE

STATE

DELTA PROTECTION ACT OF 1992

(PUBLIC RESOURCES CODE/29700 ET SEQ.)

This Act created the Delta Protection Commission with a mandate to develop a long-term resource management plan for the Delta Primary Zone. The goals of the plan are to protect, maintain and, where possible, enhance and restore the overall quality of the delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities. All local general plans for areas within the Primary Zone are required to be consistent with the regional plan. The Secondary Zone consists of areas within the statutory Delta (as defined in Section 12220 of the California Water Code) but not part of the Primary Zone. Local general plans for land use within the Secondary Zone are not required to conform to the regional plan.

LOCAL

The proposed DEC will be located in the City of Pittsburg. Portions of the project s linear facilities (e.g., electrical transmission line, natural gas pipeline) will be located in the City of Antioch and unincorporated areas of Contra Costa County.

PITTSBURG GENERAL PLAN

The City of Pittsburg General Plan, last updated in 1988, consists of the seven mandatory elements (land use, circulation, housing, open space, safety, conservation and noise) and two optional elements (Parks and Recreation and Public Facilities, Institutions, and Utilities). The Pittsburg General Plan has three functions: 1) to enable the Planning Commission and City Council to establish long-range development policies; 2) to provide a basis for judging whether specific private development proposals and public projects are in harmony with the policies; and 3) to guide other public agencies and private developers in designing projects that are consistent with city policies.

DOWNTOWN SPECIFIC PLAN

The Downtown Specific Plan (1986) was adopted out of the necessity for more specific land use and design review controls for upgrading the downtown area and to help achieve goals for downtown revitalization. The Downtown Specific Plan has been divided into four separate geographical areas, each with its own set of development standards. The proposed 230-kilovolt (kV) transmission line (interconnecting the Delta Energy Center to an existing PG&E substation at the Pittsburg Power Plant) would travel through Area II of the Specific Plan. Area II of the Specific Plan includes residential zoned and developed lands in the downtown

area, generally located north of the Santa Fe Railroad, east and west of the commercial area along Railroad Avenue.

PITTSBURG ZONING ORDINANCE

The City of Pittsburg Zoning Ordinance (Title 18 of the Municipal Code) was adopted on March 19, 1990. The purpose of the zoning ordinance is to protect the public health, safety, and general welfare, and to implement the policies of the City General Plan. It contains regulations that establish zoning districts, govern the use of land and the placement of buildings and improvements within districts, and establish performance standards.

ANTIOCH GENERAL PLAN

The current City of Antioch General Plan (1988 - 2000) consists of the seven mandatory elements and several optional elements such as public infrastructure, growth management, social services, economic development and community image. The open space, conservation and noise elements have been combined within a broader category of Resources Management.

ANTIOCH ZONING ORDINANCE

The current City of Antioch Zoning Ordinance was adopted on November 8, 1994. The broad purposes of the Zoning Ordinance are to protect and promote the public health, safety, and general welfare, and to implement the policies of the City of Antioch General Plan.

CONTRA COSTA COUNTY GENERAL PLAN

The Contra Costa County General Plan (1995 — 2010) was adopted on July 1996. The purpose of the County General Plan is to express the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development and the conservation of resources through the year 2010. In addition to the seven mandatory elements, the Contra Costa County General Plan includes a Growth Management Element and a Public Facilities/Services Element.

CONTRA COSTA COUNTY ZONING ORDINANCE

The Contra Costa County zoning ordinance establishes classes of zoning districts governing the use of land and the placement of buildings and improvements within districts.
Environmental Quality Act (CEQA), a project may have a significant effect on land use if the project will:

- Physically divide an established community.

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

A project may also have a significant impact on land use if it will create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it unduly restricts existing or planned future uses.

THE DELTA PROTECTION ACT OF 1992

The entire project is located in the Delta Secondary Zone as defined in Water Code section 12220; no part of the proposed project will encroach upon land within the Delta Primary Zone. Consequently, the proposed site is not subject to the Delta regional plan for long-term resource management, which applies only to the Delta Primary Zone.

PITTSBURG GENERAL PLAN

LAND USE ELEMENT, SECTION 2.8 INDUSTRIAL DEVELOPMENT

Guiding Policy 2.8A seeks to protect the supply of land suitable for industrial purposes and, in cooperation with the County, actively promote the development of appropriate industrial uses.

Guiding Policy 2.8B states Pittsburg s intent to retain existing industry, and allow existing industrial uses to expand, consistent with other General Plan policies.

Guiding Policy 2.8C encourages new, clean, employment-intensive industry to locate in Pittsburg.

Guiding Policy 2.8D seeks to protect existing and new residential areas from adverse effects of new industry and, wherever feasible, of existing industry.

DOWNTOWN SPECIFIC PLAN

CHAPTER 3, DOWNTOWN RESIDENTIAL AREA —AREA II

Section 3.3B allows public utility structures and uses on approval of a use permit. The issuance of a certificate by the Energy Commission is in lieu of any local permit (Pub. Resources Code,/25500), therefore a conditional use permit will not be required.

PITTSBURG ZONING ORDINANCE

Section 18.08.060.W classifies the water and natural gas pipelines as Minor Utilities. As Minor Utilities, the water and natural gas pipelines are a permitted use in all zoning districts and require no further land use regulation (Pittsburg 1999b).

Section 18.08.100 classifies a power plant as a heavy manufacturing industrial use.

Section 18.36.200 requires design review of buildings proposed in an Industrial District. Section 18.36.210 specifies the information required in the design review application.

Section 18.54.010 allows heavy manufacturing industrial uses in a General Industrial District on approval of a use permit. The issuance of a certificate by the Energy Commission is in lieu of any local permit (Pub. Resources Code,/25500). Therefore a conditional use permit will not be required.

Section 18.54.015 prescribes the following property development regulations for

General Industrial Districts:

Minimum Lot Area (sq. ft.)	20,000
Minimum Lot Width (ft.)	100
Minimum Yards (ft.)	
Front	10
Side	N/A
Corner Side	10
Rear	N/A
Maximum Height of Structures (ft.)	50
Maximum Lot Coverage	75%
Maximum Floor Area Ratio (FAR)	0.75
Minimum Site Landscaping	5%

The DEC s three Heat Recovery Steam Generator (HRSG) stacks, each 144 feet in height, and two auxiliary boiler stacks, 115 feet in height, exceed the maximum height allowed within the IG District. The zoning ordinance allows two exceptions to the 50-foot height limitation. Section 18.54.100 allows one foot of additional height for each foot the structure is set back from the minimum yard requirements, but only up to a total height of 75 feet.

Section 18.80.020 provides for an additional 20 feet over the maximum height permitted in an Industrial District for a chimney or similar tower-like structure covering not more than 10% of the ground area occupied by the structure to which it is accessory. The latter exception applies to *all* zoning districts, not just the IG District. It provides additional height *over the maximum allowed* for a structure, which in this case is 20 additional feet over the 75-foot maximum, or 95 feet from grade.

Section 18.54.020 requires design review of all projects proposed within a General Industrial District (pursuant to Chapter 18.36).

18.54.105 states that in an IG District, required front and street side yards must be landscaped, except for access driveways, or be enclosed by a solid fence or wall at least 6 feet in height.

Chapter 18.78 applies regulations and design standards for off-street parking and loading facilities in all zoning districts. Section 18.78.040 requires heavy manufacturing uses to provide 1 off-street parking space per 1,000-sq. ft. of gross building floor area. Heavy manufacturing uses fall within Group Number II of Schedule B (section 18.78.040) and must comply with the following off-street loading space requirement:

Gross Floor Area (sq. ft.)	Number of Spaces Required
15,000 to 30,000	1
30,000 to 100,000	2
100,000 and over	3

Section 18.80.030 allows a public utility distribution and transmission line, tower and pole and underground facility for distribution or transmission of the same, and appurtenances in all zoning districts, without the need for a use permit (unless it is proposed in a residential district) and not subject to building height limitation.

Section 18.80.045 requires that signs erected on a site in any land use district are subject to the Sign Regulations (Title 19).

Section 18.84.010 requires that an accessory structure in a General Industrial District comply with all regulations applicable to the main building on a site. As aboveground structures, the electrical transition station and pump station would require design review pursuant to section 18.54.020 (as governed by Chapter 18.36).

ANTIOCH GENERAL PLAN

The Antioch General Plan contains goal statements which are followed by a series of policies that are guiding directives. Where appropriate, more specific implementing policies noted in the form of bullet statements are included.

Community Character Goal — Policy #5: The City should continue to develop and maintain suitable and adequate landscaping, *utility undergrounding* (emphasis added), sign control, site and building design, parking and performance standards to ensure that all existing and future commercial and industrial developments are compatible with surrounding land uses.

Waterfront Land Goal — Policy #4: Development adjacent to and nearby the Antioch Dunes National Wildlife Refuge should be of a type, intensity and design to minimize potential impacts on this important natural resource; future development plans in the vicinity of this area should be coordinated with the U.S. Fish and Wildlife Service.

Health and Safety Goal — Policy #3: The transportation of hazardous materials through the City of Antioch shall be conducted in the safest possible manner.

- New pipelines and other channels carrying hazardous materials shall avoid residential areas and other immobile populations to the greatest extent possible.

ANTIOCH ZONING ORDINANCE

Section 9-5.3826(b)(6): New pipelines and other channels carrying hazardous materials shall avoid existing and approved residential areas and other immobile populations to the greatest extent possible. The gas pipeline avoids residential areas along the vast majority of its length, and thus is consistent with this zoning requirement.

Section 9-5.3826(g)(2): Pipelines no longer in use shall be abandoned to the satisfaction of the City Engineer and shall comply with all applicable Environmental Protection Agency (EPA) requirements for such abandonments.

CONTRA COSTA COUNTY GENERAL PLAN

TRANSPORTATION AND CIRCULATION ELEMENT

Railroad Goal 5-V states that the County will protect the existing railroad rights-of-way in the county for continued railroad use, utility corridors, roads, transit facilities, trails and other public purposes.

Railroad Policies:

Policy 5-72 states that railroad rights-of-way shall generally be designated for Public/Semi-Public uses to reflect their importance to the County s economy.

Policy 5-73 states that encroachments into railroad rights-of-way by urban uses which would impact current rail operations or preclude future use of the corridors for trails or other public purposes shall be limited.

Policy 5-74 states that trails shall be considered an appropriate interim use of an abandoned railroad right-of-way.

Policy 5-75 states that encroachment of unsuitable land uses adjacent to abandoned railroad right-of-way shall be prevented where such uses would conflict with future uses of the right-of-way identified in the Land Use, and Transportation and Circulation Elements.

The gas pipeline is consistent with railroad goal 5-v, which seeks to maintain railroad rights-of-way as utility corridors. The gas pipeline will be buried a minimum of 36 inches, or deeper, as required by the BN&SF railroad; and all crossings of the BN&SF railroad will be done by boring under the tracks (Dec. 1998a, AFC pages 7-5 and 7-7).

NEED

STATE

CALIFORNIA CODE OF REGULATIONS

California Code of Regulations states The presiding member s proposed decision shall contain the presiding member s recommendation on whether the application shall be approved, and proposed findings and conclusions on each of the following: (a) Whether and the circumstances under which the proposed facilities are in conformance with the 12-year forecast for statewide and service area electric power demands adopted pursuant to Section 25309(b) of the Public Resources Code. (Cal. Code Regs., tit. 20,／1752(a).)

PUBLIC RESOURCES CODE

The Energy Commission s Final Decision must include, among other things, Findings regarding the conformity of the proposed facility with the integrated assessment of need for new resource additions determined pursuant to subdivision (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 or, where applicable, findings pursuant to Section 25523.5 regarding the conformity of a competitive solicitation for new resource additions determined pursuant to subdivisions (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 that was in effect at the time that the solicitation was developed. (Pub. Resources Code, ／25523(f).)

NEED CONFORMANCE CRITERION

In order to obtain a license from the Energy Commission, a proposed power plant must be found to be in conformance with the Integrated Assessment of Need. The criterion governing this determination is contained in the ***1996 Electricity Report (ER 96)***, and is most succinctly described on page 72 of that document:

> In sum, the ***ER 96*** need criterion is this: during the period when ***ER 96*** is applicable, proposed power plants shall be found in conformance with the Integrated Assessment of Need (IAN) as long as the total number of megawatts permitted does not exceed 6,737.

NOISE

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C.A. ⁄ 651 et seq.), the Department of Labor, Occupational Safety and Health Administration has adopted regulations (29 C.F.R. ⁄ 1910 et seq.) that establish maximum noise levels to which workers at a facility may be exposed. These OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time during which the worker is exposed. OSHA regulations also dictate hearing conservation program requirements and workplace noise monitoring requirements.

There are no federal laws governing offsite (community) noise.

STATE

Similarly, there are no state regulations governing offsite noise. Rather, state planning law (Gov. Code, ⁄ 65302) requires that local authorities such as counties or cities prepare and adopt a general plan. Government Code section 65302(g) requires that a noise element be prepared as part of the general plan to establish acceptable noise limits. Other state LORS include CEQA and Cal-OSHA.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. The CEQA Guidelines (Cal. Code Regs., tit. 14, Appendix G, ⁄ XI) explain that a significant effect from noise may exist if a project would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project .

CAL-OSHA

The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, ⁄5095 et seq.) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

LOCAL

CITY OF PITTSBURG GENERAL PLAN NOISE ELEMENT

The General Plan Noise Element identifies those noise levels compatible with community noise environments (Pittsburg 1988, Table 10-1). For all normal sensitive noise receptors (residences, schools, hospitals, libraries and places of worship), round-the-clock exposure levels up to 60 dBA (L_{dn} or CNEL) are deemed normally acceptable, and levels up to 70 dBA are conditionally acceptable. The Noise Element further addresses increases in noise levels in existing community environments, stating that [I]ncreases of more than 5 dB are significant and can generate adverse community response in residential areas. The Noise Element goes on to list several Guiding Policies, including:

A. Minimize vehicular and stationary noise sources, and noise emanating from temporary activities.

The Pittsburg General Plan Update, now in the adoption process, reiterates the criteria that [a] 5 dB change [in noise level] is often considered a significant impact and maximum noise levels of 60 dB are considered normally acceptable for unshielded residential development (Pittsburg 1998). It further points out that [n]oise descriptors used for analysis need to account for human sensitivity to nighttime noise. The Update also identifies several issues, including:

15-1 Minimizing sources of noise. Before considering ways to protect uses from noise, an effort should be made to minimize noise at its source.

CITY OF PITTSBURG NOISE ORDINANCE

The Noise Ordinance (Pittsburg 1974) begins with the following statement:

9.44.010 Prohibitions. It is unlawful for any person to make, continue or cause to be made or continued any noise which either unreasonably annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of others . Specifically included in this category are:

G. Steam Whistles attached to any stationary boiler.

H. Exhausts of any stationary internal combustion engine .

J. Pile Drivers, Hammers and Similar Equipment. The operation between the hours of ten (10) p.m. and seven (7) a.m. of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance, the use of which is attended by loud or unusual noise, except in case of emergency.

K. Blowers unless the noise from such blower or fan is muffled sufficient to deaden such noise .

CONTRA COSTA COUNTY GENERAL PLAN NOISE ELEMENT

Two policies enunciated in this noise element (Contra Costa 1996) impact the construction and operation of a project such as the DEC. Policy 11-1 requires that new projects meet the exterior noise level standards established in the Noise and Land Use Compatibility Guidelines. The Guidelines specify that noise levels up to 60 dBA L_{dn} or CNEL are normally acceptable at residential receptors such as single family homes. Policy 11-8 requires that construction activities should take place during the normal work hours of the day to provide relative quiet during evening and morning periods.

CITY OF ANTIOCH GENERAL PLAN NOISE GOAL

The Noise Goal encompasses several relevant policies (Antioch 1988). Policy˚1 delineates land use compatibility guidelines that consider noise levels at single family residential receptors up to 60 dBA L_{dn} or CNEL as normally acceptable. Policy 7, which would apply to construction of the DEC, requires that the impact of noise sources be minimized, if possible, by limiting them to the daytime hours, defined as 7:00 a.m. to 7:00 p.m. Policy 11 limits the background ambient noise level for outdoor living areas, defined as backyards for single family homes, to 60˚dBA CNEL.

CITY OF ANTIOCH ZONING ORDINANCE

Article 19 of this ordinance (Antioch 1994) states that uses adjacent to single family homes shall not cause an increase in background ambient noise that exceeds 60˚dBA CNEL.

PALEONTOLOGIC RESOURCES

FEDERAL

National Environmental Policy Act (NEPA): Title 42 United States Code,／4321-4327; requires that ... important historic, cultural, and natural aspects of our national heritage ... be protected; requires that ... a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences ... in planning and decision making ... be followed. NEPA also requires federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.

Federal Land Policy and Management Act (FLPMA): Title 43 United States Code, Chapter 35, Sub-Chapter VI, Section 1781-1782; requires the Secretary of Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archeological values [1781(a)(8)]; requires public lands to be inventoried and provides that permits may be required for the use, occupancy, and development of the public lands; requires the Secretary, with respect to the public lands, to promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740].

FEDERAL GUIDELINES FOR PALEONTOLOGIC RESOURCES

The US Bureau of Land Management (BLM) recently adopted a new section for its policy and procedures manual. This section focuses on treatment of paleontologic resources on public lands managed by the BLM and it is consistent with the recommendations of a professional society, as described below.

United States Dept of Interior, Bureau of Land Management: BLM Manual, New Section 8270, Paleontological Resource Management; effective July 13, 1998. As stated in the new section of the manual, BLM policy is that:

> The paleontological resources found on public lands are recognized by the BLM as constituting a fragile and non-renewable scientific record of the history of life on earth, and so represent an important and critical component of America s natural heritage. BLM will exercise stewardship of these resources as part of its public land management responsibility.

United States Dept of Interior, Bureau of Land Management: Handbook H-8270-1 General Procedural Guidance for Paleontological Resource Management; published as a supplement to BLM Manual Section 8270; Effective July 13, 1998.

STATE

California Environmental Quality Act (CEQA): Public Resources Code sections 5020.1, 5024.1, 21083.2, 21084.1, *et seq,* requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

California Environmental Quality Act (CEQA) Guidelines: California Code of Regulations, ⁄ 15000, *et seq*, Appendix G (j)], specifically defines a potentially significant environmental effect as occurring when the proposed project will ...disrupt or adversely affect...a paleontological site, except as part of a scientific study.

Public Resources Code, ⁄ 5097.5. Any unauthorized removal of paleontologic resources or sites located on public lands is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority or public corporation, or any agency thereof.

PROFESSIONAL GUIDELINES AND CRITERIA

In 1994, the Society for Vertebrate Paleontology (SVP), a national professional organization, distributed final revisions to a set of draft guidelines that outline acceptable professional practices in the conduct of paleontologic resource surveys, monitoring and mitigation, data and fossil recovery, sampling, preparation, analysis, and curation (SVP 1994). Prior to the adoption of the final guidelines, many practicing professional paleontologists in California had chosen to adhere to the proposed mitigation and monitoring requirements in the guidelines. At the annual meeting in late 1994, the revised guidelines for mitigation were adopted by the membership of the society and published in the society journal (SVP 1995).

In its guidelines for monitoring and mitigation, the SVP established three categories of sensitivity for paleontologic resources: high, low, and undetermined (SVP 1995). Areas where fossils have been previously found are deemed to have a high sensitivity and a high potential to produce fossils. In areas of high sensitivity, full-time monitoring is typically recommended during any project disturbance. Areas that are not sedimentary in origin and that have not been known to produce fossils previously, typically are deemed low sensitivity and monitoring is usually not needed during project construction. Areas that have not had any previous paleontologic resource surveys or fossil finds are deemed undetermined until surveys and mapping is done. After reconnaissance surveys, observation of exposed cuts, and possibly sub-surface testing, a qualified paleontologist can determine whether the area should be categorized as having high, low, or undetermined sensitivity; that is, whether there is a high or low potential to encounter fossil resources (SVP 1995).

PUBLIC HEALTH

FEDERAL

FDA, 1985. United States Food and Drug Administration. Federal Register. Vol. 50, No. 243. December 18.

Federal Clean Air Act, 42 U.S.C. sections 7401 et. seq.

40 CFR Part 68, Risk Management Plan.

STATE

Health and Safety Code sections 44360 et. seq., the Air Toxics Hot Spots Information and Assessment Act.

BAAQMD, Bay Area Air Quality Management District, Cumulative Air Toxics Modeling Study, Staff Report. July, 1993

BAAQMD, Bay Area Air Quality Management District, Toxic Air Contaminant Control Program Annual Report 1997, Vols. I & II. December, 1998.

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

DHS, 1992. California Department of Health Services. Review of Health Risks Relating to Ingestion and Inhalation of Constituents of Reclaimed Water.

Department of Health Services, proposed regulations on disinfected tertiary recycled water (DTRW). Title 22, California Code of Regulations, section 60301.100, et. seq.

California Health and Safety Code, section 25249.5 et. seq., Safe Drinking Water and Toxic Enforcement Act of 1986 Proposition 65.

California Health and Safety Code, sections 25531 to 25541.

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

LOCAL

Bay Area Air Quality Management District Rule 2-1-316 requires a risk assessment or risk screening analysis to be performed for new or modified facilities that emit one or more toxic air contaminants that exceed specified amounts.

RELIABILITY

Presently, there are no laws, ordinances, regulations, or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the Commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation [Cal. Code Regs., tit. 20,／1752(c)].

SOIL AND WATER RESOURCES

FEDERAL

CLEAN WATER ACT

The Clean Water Act (33 USC ⁄1257 et seq.) requires states to set standards to protect water quality. Point source discharges to surface water are regulated by this act through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) Permits. Stormwater discharges during construction and operation of a facility and incidental non-stormwater discharges associated with transmission and pipeline construction also fall under this act and are addressed through a general NPDES permit. Section 307 of the Act and Code of Federal Regulations 403, requires that all non-domestic discharges to wastewater treatment plants must receive a pretreatment permit. This permit is to ensure that the discharge will not interfere with the treatment processes at the plant nor make the facility violate its own discharge permit limitations.

In California, the requirements of the Clean Water Act are administered by the nine Regional Water Quality Control Boards (RWQCBs). Section 404 of the act regulates the discharge of dredged or fill material into waters of the United States, including rivers, streams and wetlands. Site specific or general (nationwide) permits for such discharges are issued by the Army Corps of Engineers (ACOE).

STATE

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards and implementation procedures. The criteria for the project area are contained in the San Francisco Bay Regional Water Quality Control Board s (SFBRWQCB) San Francisco Bay Basin Water Quality Control Plan (Basin Plan) ([SFBRWQCB] 1995). In addition to the requirements of the Basin Plan, the SWRCB (1971) adopted the Plan for the Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries. This plan sets numerical and narrative water quality standards controlling the discharge of wastes with elevated temperature to the state's waters.

Under provisions of the Clean Water Act, the SWRCB adopted two general National Pollutant Discharge Elimination System (NPDES) Permits for control of stormwater runoff during construction and operation of industrial facilities, such as a power plant and associated facilities.

Ground disturbance activities affecting greater than five acres are required, under the General Construction Activity Storm Water Permit, to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). This plan identifies best management practices to reduce sediment, oil and other contaminants in stormwater discharges from the site. The general NPDES permit for Industrial Activities also requires industrial facilities, such as power plants, to prepare and implement a SWPPP that identifies best management practices to reduce the discharge of contaminants from facility operation in stormwater discharge.

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principle policy of the SWRCB which addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (adopted by SWRCB on June 19, 1976 by Resolution 75-58). This policy states that use of fresh inland waters should only be used for powerplant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should, in order of priority come from wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy goes on to address cooling water discharge prohibitions.

Section 13551 of the Water Code prohibits the use of water from any source of quality suitable for potable domestic use for nonpotable uses, including industrial uses, if suitable recycled water is available given conditions set forth in section 13550. These conditions take into account the quality and cost of the water, the potential for public health impacts and the effects on downstream water rights, beneficial uses and biological resources.

Section 13552.6 of the Water Code states that the use of potable domestic water for cooling towers, if suitable recycled water is available, is an unreasonable use of water. The availability of recycled water is based upon a number of criteria, which must be taken into account by the SWRCB. These criteria are 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, will not impact downstream users or biological resources and will not degrade water quality.

Section 13552.8 of the Water Code states that any public agency may require the use of recycled water in cooling towers if certain criteria are met. These criteria include that recycled water is available and meets the requirements set forth in section 13550; the use does not adversely affect any existing water right; and if there is public exposure to cooling tower mist using recycled water, appropriate mitigation or control is necessary.

LOCAL

DELTA-DIABLO SANITATION DISTRICT

Chapter 2.28 of the Subregional Sewer System Use Rules and Regulations sets forth the pretreatment requirements for non-domestic discharges to the sewer and wastewater treatment system.

CITY OF PITTSBURG GRADING ORDINANCE (1984)

The City of Pittsburg relies upon the Uniform Building Code, Chapter 33 for grading and erosion control, pursuant to Pittsburg Municipal Code Chapter 15.88 Grading, Erosion, and Sediment Control.

CITY OF ANTIOCH STORMWATER MANAGEMENT AND DISCHARGE CONTROL ORDINANCE (1995)

The Antioch Municipal Code Title 6, Chapter 9, ⁄ 6-9.01 et seq. controls non-stormwater discharges to the city s storm water system.

SOCIOECONOMIC RESOURCES

FEDERAL

Clinton, William. February 11, 1994. *Memorandum for the Heads of All Departments and* Agencies; Executive Order on Federal Actions to Address Environmental Justice in Minority *Populations and Low-Income Populations.* Presidential Documents, Vol. 30, No. 6, 279-280.

Code of Federal Regulations, Title 40, Section 7.120 *Complaint Investigations [by* EPA of alleged discrimination]

Council on Environmental Quality. December 10, 1997 [released July 1998]. *Environmental Justice; Guidance Under the National Environmental Policy Act.* Council on Environmental Quality, Executive Office of the President, Washington, DC.

Executive Order 12898. February 11, 1994. *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* Federal Register, Vol. 59, No. 32, 7629-7633,

U. S. Environmental Protection Agency, Office of Federal Activities. July 19, 1995. *Draft Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews.* USEPA, Office of Federal Activities, NEPA Compliance Division, Washington, DC,

U.S. Environmental Protection Agency. April 1998. *Guidance for Incorporating Environmental Justice in EPA's NEPA Compliance Analyses.* USEPA, Office of Federal Activities, NEPA Compliance Division, Washington, DC.

CALIFORNIA GOVERNMENT CODE, SECTION 65995-65997

SB 50 and other statutory amendments enacted in 1998 provide that, notwithstanding any other provisions of local or state law (including CEQA), state and local agencies may not require mitigation for the development of real property for effects on school enrollment except as provided by new provisions in the Government Code, Section 65996(a). The relevant provisions restrict fees for the development of commercial and industrial space to the $0.31 per square foot of chargeable covered and enclosed space. (Govt. Code, Sec. 65995(b)(2).)

ENVIRONMENTAL JUSTICE

President Clinton s Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations was signed on February 11, 1994. The order required the US Environmental Protection Agency (USEPA) and all other federal agencies to develop environmental justice strategies. The USEPA subsequently issued Guidelines that require all federal agencies and state agencies receiving federal funds, to develop strategies to

address this problem. The agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

TRAFFIC AND TRANSPORTATION

FEDERAL

The federal government addresses transportation of goods and materials in Title 49, Code of Federal Regulations:

- Title 49, Code of Federal Regulations, Section 171-177, governs the transportation of hazardous materials, the type of materials defined as hazardous, and the marking of the transportation vehicles.

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

STATE

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

- California Vehicle Code, section 353 defines hazardous materials.

- California Vehicle Code, sections 31303-31309 regulate the highway transportation of hazardous materials, the routes used, and restrictions thereon.

- California Vehicle Code, section 31030 requires that permit applications shall identify the commercial shipping routes they propose to utilize for particular waste streams.

- California Vehicle Code, sections 31600-31620 regulate the transportation of explosive materials.

- California Vehicle Code, sections 32000-32053, regulate the licensing of carriers of hazardous materials and include noticing requirements.

- California Vehicle Code, sections 32100-32109, establish special requirements for the transportation of inhalation hazards and poisonous gases.

- California Vehicle Code, sections 34000-34121, establish special requirements for the transportation of flammable and combustible liquids over public roads and highways.

- California Vehicle Code, sections 34500, 34501, 34501.2, 34501.4, 34501.10, 34505.5-7, 34507.5 and 34510-11, regulate the safe operation of vehicles, including those that are used for the transportation of hazardous materials.

- California Vehicle Code, sections 2500-2505, authorize the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.

- California Vehicle Code, sections 13369, 15275, and 15278, address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, this section requires the possession of certificates permitting the operation of vehicles transporting hazardous materials.

- California Streets and Highways Code, sections 117 and 660-72, and California Vehicle Code 35780 et seq., require permits for the transportation of oversized loads on county roads.

- California Streets and Highways Code, sections 660, 670, 1450, 1460. et seq., 1470, and 1480, regulate right-of-way encroachment and the granting of permits for encroachment on state and county roads.

- California Health and Safety Code, sections 25160 et seq., address the safe transport of hazardous materials

LOCAL

CITY OF PITTSBURG

The Traffic and Circulation Element of the City of Pittsburg General Plan sets up standards for traffic service and roadway improvements. It introduces planning tools essential for achieving the local transportation goals and policies (City of Pittsburg, 1988). Specific policies from the Traffic and Circulation Element that directly relate to this project include:

- The City shall plan, design, and regulate roadways in accordance with the functional classification system and circulation diagram contained within the General Plan.

- The City shall strive to maintain traffic LOS C or better as the standard at all intersections with LOS D during no more than three hours of the day (a.m.., p.m., and noon peaks).

- The City shall accept Level of Service (LOS) D during two-hour peak periods, with the possibility of intersections at or closely approximating the limits of LOS D, only on arterial routes bordered by nonresidential development where improvements to meet the City s standard would be prohibitively costly or disruptive.

- The City s LOS standards for the state highway system and specific routes of regional significance will be those standards adopted in the Contra Costa Congestion Management Program.

- The City will require all new development projects to analyze their contributions to increased traffic and to implement improvements necessary to address these increases.

CITY OF ANTIOCH

The Streets and Highway Goals of the City of Antioch General Plan set standards to provide adequate capacity to, from, and within the City, to achieve acceptable operations on all roadways and all intersections.

Although the majority of the power plant and linear facilities are located in Pittsburg, the project reclaimed water lines and natural gas lines cross into the jurisdiction of the City of Antioch.

RAILROADS

The Union Pacific, Southern Pacific, and Burlington Northern and Santa-Fe (BN&SF) all operate active main line and spur tracks in the project vicinity. The Southern Pacific line parallels State Route 4, while the BN&SF and Union Pacific lines pass north of the project location. These three railroad lines provide freight service for the industrial uses in the area. A Southern Pacific crossing exists at Loveridge Road south of the Pittsburg-Antioch Highway. All three-rail lines will require Right of Entry Forms for any work conducted on their property. Additional permitting would be required for a permanent right-of-way for any applicable utility crossing.

TRANSMISSION SYSTEM ENGINEERING

STATE

California Public Utilities Commission (CPUC) General Order 95 (GO-95), Rules for Overhead Electric Line Construction , formulates uniform requirements for construction of overhead lines. Compliance with this order will ensure adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead electric lines and to the public in general.

CPUC General Order 128 (GO-128), Rules for Construction of Underground Electric Supply and Communications Systems, establishes uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety.

CPUC Rule 21 provides standards for the reliable connection of parallel generating stations connected to participating transmission owners.

Western Systems Coordinating Council (WSCC) Reliability Criteria provide the performance standards used in assessing the reliability of the interconnected system that provides continuity of service to loads as a first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 Criteria for Transmission System Contingency Performance which requires that the results of power flow and stability simulations verify established performance levels.

Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance (such as loss of load or a single transmission element out of service) to a performance level that only seeks to prevent system cascading and the subsequent blackout of islanded areas during major disturbances (such as loss of all lines in a right of way). While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).

North American Electric Reliability Council (NERC) Planning Standards provides policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC s Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions. However, the NERC

planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1997).

Cal-ISO Reliability Criteria also provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC s Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid.

Cal-ISO Scheduling Protocols and Dispatch Protocols require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria. These standards will be applied in assessing the system reliability implications of the DEC. Also of major importance to the DEC and other privately funded projects which may sell through the California Power Exchange (Cal-PX) is the Cal-ISO Day/Hour Ahead Inter-zonal Congestion Management Scheduling Protocol (SP 10), the Transmission System Loss Management Scheduling Protocol (SP 4), and the Creation of the Real Time Merit Order Stack (SP 11).

The Congestion Management Scheduling Protocol provides that dispatch not violate system criteria as market participants are requesting generation dispatch or the use of major interties. The Real Time Merit Order Stack is developed based on increasing energy bid prices so that the least cost bids are accepted early on and if congestion is anticipated the highest bids are not selected. The Transmission System Loss Management Scheduling Protocol uses the Cal-ISO power flow model to identify the effects on total transmission losses at each generating unit and scheduling point. Additional calculations are performed to the actual the net power output required by the generating units to meet their scheduled obligations (Cal-ISO 1998b, Cal-ISO 1998c).

VISUAL RESOURCES

FEDERAL AND STATE

The proposed project, including the linear facilities, is located on private lands and is not subject to federal land management requirements. Likewise, no roadway in the project vicinity is a designated or eligible State Scenic Highway. Therefore, the project is not subject to any federal or state regulations pertaining to visual resources other than the state requirements under CEQA that are addressed in this analysis.

LOCAL

The proposed power plant, including all of the above-ground power transmission lines, would be located in the City of Pittsburg. Most of an underground gas pipeline would run through the City of Antioch and a short portion of the gas line near its eastern terminus would be located in Contra Costa County. Also, a short portion of the underground power line near its western terminus is located in Contra Costa County. Therefore, the project will be subject to local laws, ordinances, regulations, and standards pertaining to protecting and maintaining visual character and quality for the City of Pittsburg, City of Antioch, and Contra Costa County. Applicable laws, ordinances, regulations, and standards are from the City of Pittsburg General Plan (1988) and Zoning Ordinance (1990), the City of Antioch General Plan (1988), and the Contra Costa County General Plan 1990-2005 (1991) and are identified below.

CITY OF PITTSBURG

GENERAL PLAN

Policies contained in the City of Pittsburg General Plan (1988) that apply to protecting and maintaining visual resources are identified below. Relevant policies are from the Land Use Element; Public Facilities, Institutions, and Utilities Element; and Parks and Recreation Element, and are described below. The City of Pittsburg distinguishes between Guiding policies which identify the City s philosophy and implementing policies which represent its commitment to action.

2. Land Use Element

2.1 Community Image

Guiding Policies

A. Design aesthetically pleasing roadways lined with trees or other appropriate landscaping, that connect Pittsburg neighborhoods and serve planned development.

C. Develop standards for entry points to the city, including landscape design and a coherent signage design.

E. Preserve the feel of a city surrounded by open space, and preserve corridors to the hills and to the waterfront.

Implementing Policies

R. Rely on the Architectural Review Process, City Planning Commission, and City Council to ensure that both public and private design meet the high standards of the City of Pittsburg and are consistent with the overall General Plan.

S. Make preservation of view corridors to the hills and to the waterfront a consideration in project and design review.

2.8 Industrial Development

Guiding Policies

D. Protect existing and new residential areas from adverse effects of new industry and, wherever feasible, of existing industry.

Implementing Policies

J. Adopt setback, landscaping, and screening requirements for industrial development to protect adjacent non-industrial uses.

4. Parks and Recreation Element

4.2 Park and Recreation Facilities, Planning and Management

Implementing Policies

N. Maintain view corridors for views of the river.

5. Public Facilities, Institutions, and Utilities Element

5.3 Utilities and Public Services

Guiding Policies

C. Require buffer landscaping and multiple use, where feasible, of utility sites and rights-of-way to harmonize with adjoining uses.

Zoning Ordinance

The project site is designated in the City of Pittsburg s zoning ordinance as General Industrial District (IG). The City zoning ordinance includes the following regulations that apply to protecting and maintaining visual resources in the City. These regulations are intended to support stated purposes in the zoning ordinance that ensure that the appearance and effects of industrial uses are compatible with the character of the area in which they are located and minimize the impact of industrial uses on adjacent residential districts .

Section 18.54.015: This section requires that a minimum of 5 percent of a site in the IG District be landscaped.

Section 18.54.105: Requires front and street side yards to be landscaped, except for access driveways, or be enclosed by a solid fence or wall at least 6 feet in height.

Section 18.80.035: This section requires that a refuse storage area located within a building or screened on three sides by a 6-foot high concrete or masonry wall and including a gate constructed to city design standards be provided before occupancy for uses other than a single-family or duplex dwelling. The city planner may waive this screening requirement in the IG district for refuse collection and storage equipment, including a dumpster and waste storage container that is not visible from a public street.

Section 18.80.045: This section requires that signs erected on a site in any land use district comply with the Sign Regulations (Title 19).

Section 18.82.045: This section requires that each exterior of a building or other structure be kept in a good state of repair and the exterior finish must be clean and well maintained; and the entire site including paved, unpaved, and landscaped areas must be kept in a neat and orderly manner, free of weeds, loose trash, debris and other litter.

CITY OF ANTIOCH

GENERAL PLAN

The City of Antioch General Plan (Antioch 1988) contains several goals that are relevant to the protection and enhancement of visual resources. The overall image goal for the City of Antioch is to preserve and enhance aesthetic and cultural elements that contribute to the City s image of small town neighborhoods position(ed) at the gateway to the delta . Relevant policies for visual resources that support the community design goal include the following.

Policy 1 states: View corridors to the San Joaquin River, to distant hills and to local ridge lines should be preserved by prohibiting the siting of structures or landscaping that would block views from adjacent properties... .

Policy 2 states: Views along utility easements should be retained and enhanced through the use of planting materials to frame and focus views and to provide a sense of orientation .

Policy 4 states: Edges, the visual boundaries between neighborhoods and adjacent communities, should be maintained to provide relief from urban sprawl and to reinforce neighborhood identity . The western edge between Pittsburg and Antioch is identified as one of the important edges to be enhanced.

CONTRA COSTA COUNTY

GENERAL PLAN

The Contra Costa County General Plan (Contra Costa County 1991) contains the following policies and implementation measures that would apply to the proposed project.

Land Use Element

Policies

3-19 - Buffers shall be provided between new industrial developments and residential areas by establishing setbacks, and park-like landscaping or other appropriate mechanisms.

Implementation Measures

3-z - Initiate and enforce, if necessary, specific development standards for both proposed and existing businesses to achieve appropriate landscaping design and sign structures.

Open Space Element

Scenic Resource Policies

9.17 — New power lines shall be located parallel to existing lines in order to minimize their visual impact.

9.24 — The appearance of the County shall be improved by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.

WASTE MANAGEMENT

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C. SECTION 6922)

The Resource Conservation and Recovery Act establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- labeling practices and use of appropriate containers,
- use of a manifest system for transportation, and
- submission of periodic reports to the EPA or authorized state.

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE

CALIFORNIA HEALTH AND SAFETY CODE SECTION 25100 ET SEQ. (HAZARDOUS WASTE CONTROL ACT OF 1972, AS AMENDED).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 17200 ET SEQ. (MINIMUM STANDARDS FOR SOLID WASTE HANDLING AND DISPOSAL)

These regulations specify minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

TITLE 22, CALIFORNIA CODE OF REGULATIONS, SECTION 66262.10 ET SEQ. (GENERATOR STANDARDS)

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

LOCAL

There are no additional local LORS to be considered.

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

- 29 U.S.C⁄651 et seq. (Occupational Safety and Health Act of 1970)

- 29 C.F.R.⁄⁄1910.1 - 1910.1450 (Occupational Safety and Health Administration Safety and Health regulations)

- 29 C.F.R.⁄⁄1952.170 - 1952.175 (Approval of California s plan for enforcement of its own Safety and Health requirements, in lieu of most of the federal requirements found in⁄⁄1910.1 - 1910.1500)

STATE

- Title 8, California Code of Regulations,⁄450 et seq. (Applicable requirements of the Division of Industrial Safety, including Unfired Pressure Vessel Safety Orders, Construction Safety Orders, Electrical Safety Orders, and General Industry Safety Orders)

LOCAL

- 1998 Edition of California Fire Code (CFC) and all applicable (National Fire Protection Association (NFPA) standards. The fire code contains provisions necessary for fire prevention and information about fire safety, special occupancy uses, special processes, and explosive, flammable, combustible and hazardous materials.

- Uniform Fire Code (UFC) Standards. This is a companion publication to the CFC and contains standards of the American Society for Testing and Materials and of the National Fire Protection Association.

- California Building Code. (Cal. Code Regs., tit. 24) The California Building Code is designed to provide minimum standards to safeguard human life, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, etc. of buildings and structures.

STATE OF CALIFORNIA
Energy Resources Conservation
and Development Commission

In the Matter of:	)	
	)	
Application for Certification for the	)	**Docket No. 98-AFC-3**
Delta Energy Center (Calpine	)	
Corporation and Bechtel Enterprises, Inc.)	)	
	)	

PROOF OF SERVICE

I, _____declare that on _____, I deposited copies of the attached _____in the United States mail at **SACRAMENTO, CA** with **first class** postage thereon fully prepaid and addressed to the following:

DOCKET UNIT

Send the original signed document plus the required 12 copies to the address below:

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
Attn: Docket No. 98-AFC-3
1516 Ninth Street
Sacramento, CA 95814-5512

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

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LIMITED PURPOSE INTERVENOR

Thomas M. Barnett, Vice President
High Desert Power Project
3501 Jamboree Rd. S. Tower, Ste. 606
Newport Beach, CA 92660

Community Health First

I declare, under penalty of perjury, that the foregoing is true and correct.

_____
[signature]

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	
	)	
Application for Certification	)	**Docket No. 98-AFC-3**
For the DELTA ENERGY CENTER	)	
(Calpine Corporation and Bechtel	)	
Enterprises, Inc.)	)	

EXHIBIT LIST

EXHIBIT 1: Calpine/Bechtel s testimony for the Delta Energy Center Project, for all issue areas excluding Air Quality and Soil and Water Resources, dated September 1999, docketed on September 21,1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 2: Application for Certification, Volumes I and II, submitted on December 18, 1998, accepted in February 1999. Sponsored by Applicant; submitted into received on November 18, 1999.

EXHIBIT 3: Data Adequacy Responses for the Delta Energy Center. Filed on January 25, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 4: Letter to Paul Richins, Energy Commission Project Manager, regarding transmitting power flows performed by Pacific Gas and Electric (PG&E), dated February 4, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 5: PG&E Detailed Facilities Study for the Delta Energy Center, filed March 25, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 6: Responses to Energy Commission Data Requests Numbers 1 through 61, dated March 31, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 7: Responses to Energy Commission Data Requests Numbers 51 and 52, dated April 12, 1999. Sponsored by Applicant; received into evidence on October 13, 1999.

EXHIBIT 8: The Final Wetland Delineation Report to the U. S. Army Corp of Engineers, filed May 3, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 9: Responses to Energy Commission Informal Data Requests on Visual Resources, Hazardous Materials, amendment to change gas interconnection location, and change the location where the waste water will be discharged, filed May 7, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 10: Responses to Energy Commission Informal Data Responses on Transmission System Engineering, Land Use, and Public Health, filed May 14, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 11: Independent System Operator (ISO) comments on PG&E Detailed Facilities Study for the Delta Energy Center project, filed June 2, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 12: Supplemental filing to the Delta Energy Center s Application for Certification on the Reduction in Length of Gas Pipeline and Inclusion of an Additional Outfall for Wastewater Discharge, filed June 16, 1999. Sponsored by Applicant; received into evidence on October 13, 1999.

EXHIBIT 13: Submittal of 1998-1999 Vernal Pool Crustacean Presence/Absence Survey 90-Day Report, prepared for the United States Fish and Wildlife Service, dated June 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 14: Permit Application to the U.S. Army Corp of Engineers and Biological Assessment, filed July 1, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 15: Letter to Paul Richins, Energy Commission Project Manager, transmitting a letter to Paulette Lagana answering transmission questions; a report entitled Electric and Magnetic Field Assessment, 230 kV Transmission Interconnection, dated May 21, 1999; and a report entitled Soil Thermal Survey Calpine Pittsburg, Inc., Underground Transmission Line, dated June 1999, docketed July 2, 1999. Sponsored by Applicant; received into evidence on October 13, 1999.

EXHIBIT 16: Calpine/Bechtel Status Report No. 4, filed July 22, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 17: Streambed Alteration Agreement Application to the California Department of Fish and Game, filed July 23, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 18: Calpine/Bechtel Comments on Energy Commission Preliminary Staff Assessment, filed August 19, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 19: Submittal of Environmental Analysis in Response to Energy Commission Staff s Request to Relocate a Segment of the Transmission Line Route, filed September 1, 1999. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 20: Final Staff Assessment on the Delta Energy Center Project, filed on September 10, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 21: California Independent System Operator testimony dated September 17, 1999, in response to the Committee s Scheduling Order. Sponsored by Staff, received into evidence on October 5, 1999.

EXHIBIT 22: Maps filed on September 28, 1999. Figure 1.1-1 Proposed Location of the DEC Project; Figure 1.1-2 Site Arrangement; and, Figure 1.2-1a DEC Site and Linear Facilities. Sponsored by Applicant; received into evidence on October 5, 1999.

EXHIBIT 23: Letter to Paul Richins, Energy Commission Project Manager, dated June 22, 1999, regarding the proposed location of an ammonia tank. Sponsored by Applicant; received into evidence on October 13, 1999.

EXHIBIT 24: Errata to Cultural Resources Testimony of Gary D. Walker, dated October 5, 1999. Sponsored by Staff; received into evidence on October 5, 1999.

EXHIBIT 25: Corrections to pages 6 and 7 of the General Conditions of Compliance section of the Final Staff Assessment. Sponsored by Staff; received into evidence on October 5, 1999.

EXHIBIT 26: Resume of Rick Tyler, Associate Mechanical Engineer for the California Energy Commission. Sponsored by Staff; received into evidence on October 5, 1999.

EXHIBIT 27: Delta Energy Center (DEC) Chemical Inventory Table 8.12-2. Sponsored by Staff; received into evidence on October 5, 1999.

EXHIBIT 28: Calpine/Bechtel Subsurface Investigation and Foundation Report. Sponsored by the Applicant; received into evidence on October 13, 1999.

EXHIBIT 29: Staff s Errata to the Final Staff Assessment. Sponsored by Staff; received into evidence on October 13, 1999.

EXHIBIT 30: Jerry P. Salamy, Air Quality Engineer, resume and qualifications. Sponsored by Applicant; received into evidence on October 13, 1999.

EXHIBIT 31: Letter from City of Pittsburg, dated August 23, 1999, to CEC Project Manager, Paul Richins. Sponsored by City of Pittsburg; received into evidence on October 13, 1999.

EXHIBIT 32: Map from Joe Hawkins identifying endangered species from the EPA, dated November 3, 1999. Sponsored by Community Health First; received into evidence on November 3, 1999.

EXHIBIT 33: Calpine/Bechtel Application for a NPDES permit for the Delta Energy Center Project, dated April 19, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 34: Calpine/Bechtel Data Responses to the CEC Data Requests 76 through 86, and Erosion Control and Stormwater Management Plan, dated April 26, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 35: Calpine/Bechtel letter to the City of Antioch regarding potential impacts on the City of Antioch water supply from development of the Delta Energy Center, dated May 24, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 36: Application for Industrial Discharge Permit to the Delta Diablo Sanitation District, dated June 24, 1999. Sponsored by Applicant; received into evidence on November 3, 1999.

EXHIBIT 37: Letter from Department of Health Services to the Regional Water Quality Control Board, dated October 8, 1999. Sponsored by Staff; received into evidence on November 3, 1999.

EXHIBIT 38: Letter from the Regional Water Quality Control Board to the Delta Diablo Sanitation District, dated September 29, 1999. Sponsored by Staff; received into evidence on November 3, 1999.

EXHIBIT 39: Final Staff Assessment, Part 2, Joe O Hagan s testimony on Water Resources, dated October 21, 1999. Sponsored by Staff; received into evidence on November 3, 1999.

EXHIBIT 40: Testimony of John B. Dickey on Soils, dated October 20, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 41: Testimony of Noel Williams on Water Resources, dated October 20, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 42: The United States Fish and Wildlife Service Biological Opinion on the Delta Energy Center Construction Project, dated November 1, 1999, docketed November 12, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 43: Calpine/Bechtel's testimony for the Delta Energy Center on Air Quality, dated November 8, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 44: Responses to CEC Data Requests, Numbers 62-75 (AQ-1 to AQ-14), dated April 20, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 45: Letter dated May 20, 1999 from Sierra Research to Paul Richins, CEC, submitting errata to Appendix 8.1I for the Delta Energy Center. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 46: Letter dated June 28, 1999 from Sierra Research to Chris Tooker, CEC, providing a supplement cumulative air quality impacts analysis that had been requested by the CEC staff. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 47: Letter dated October 21, 1999 from Sierra Research to the CEC regarding PM10 mitigation. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 48: Letter dated October 6, 1999 from Sierra Research to Paulette Lagana, CAP-IT, regarding proposed ambient monitoring program for Pittsburg/Antioch area. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 49: Correspondence to the Bay Area Air Quality Management District (BAAQMD), from Sierra Research (21 letters). Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 50: Calpine/Bechtel s revised testimony on Socioeconomics, filed on October 8, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 51: Calpine/Bechtel s testimony on Environmental Justice, filed on November 6, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 52: Letter from Doug Buchanan to the CEC dated August 13, 1999 regarding property tax distributions. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 53: Response to Joe Hawkins Data Request Set Two, dated October 8, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 54: Final Staff Assessment, Part 2, Air Quality, Testimony of Magdy Badr, dated November 9, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 55: Testimony of Guido Franco, A Modeling Assessment of Cumulative Air Quality Impacts of the Pittsburg District Energy Facility and Other Incremental Sources, dated May 3, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 56: The Preliminary Determination of Compliance, BAAQMD, dated August 18, 1999; docketed August 19, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 57: Letter from the United States Environmental Protection Agency to the BAAQMD Air Pollution Control Officer, dated September 23, 1999, offering comments on the Preliminary Determination of Compliance. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 58: The Final Determination of Compliance, dated October 21, 1999, docketed October 25, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 59: Errata for the Final Determination of Compliance, dated on November 1, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 60: Letter from Energy Commission staff (Robert Therkelsen) to Ellen Garvey, APCO, BAAQMD, dated September 24, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 61: Staff s Supplemental Environmental Justice Data and Analysis, Socioeconomic Testimony of Amanda Stennick, dated November 3, 1999, docketed November 3, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 62: Testimony of Intervenor Californians for Renewable Energy, Inc., dated November 12, 1999. Sponsored by Intervenor Californians for Renewable Energy, Inc.; received into evidence on November 18, 1999.

EXHIBIT 63: Pacific Gas and Electric Company s Application for Authorization to Sell Certain Generating Plants and Related Assets Application No. 98-01-008, Draft Environmental Impact Report, dated August 5, 1998. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 64: Testimony of Michael Yarbrough on behalf of Intervenor California Unions for Reliable Energy (CURE) on Socioeconomic Impacts of the Delta Energy Center, dated September 20, 1999. Sponsored by Intervenor CURE; received into evidence on November 18, 1999.

EXHIBIT 65: Data Requests from Intervenor Community Health First to the Energy Commission, the Applicant Delta Energy Center, BAAQMD, and the City of Pittsburg, dated September 25, 1999, docketed September 27, 1999. Sponsored by Intervenor Community Health First; received into evidence on November 18, 1999.

EXHIBIT 66: Data Responses of Energy Commission Staff to Intervenor Community Health First, dated and docketed October 19, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 67: Air Quality and Public Health Testimony of Intervenor Community Health First, dated and docketed October 5, 1999. Sponsored by Intervenor Community Health First; received into evidence on November 18, 1999.

EXHIBIT 68: Evidence Submission of Intervenor Community Health First One on Air and Environment, dated November 12, 1999, docketed November 15, 1999. Sponsored by Intervenor Community Health First; received into evidence on November 18, 1999.

EXHIBIT 69: Resolution 99-32 of the Trustees of the Pittsburg Unified School District, dated October 13, 1999, Requesting the Environmental Protection Agency declare Pittsburg an Environmental Justice Community. Sponsored by Intervenor Californians for Renewable Energy; received into evidence on November 18, 1999.

EXHIBIT 70: Resume of Bill J. Forrest. Sponsored by Intervenor Californians for Renewable Energy; received into evidence on November 18, 1999.

EXHIBIT 71: Preliminary Summary of Pittsburg and Baypoint Bucket Results, dated November 5 and 11, 1999. Sponsored by Intervenor CAP-IT; received into evidence on November 18, 1999.

EXHIBIT 72: Variance Resolution No.99-9060, City of Pittsburg, dated November 15, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 73: Letter from BAAQMD to CEC staff, dated November 17, 1999. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 74: Average of Maximum PM_{10} concentrations 1995-1997, Table 1. Sponsored by Staff; received into evidence on November 18, 1999.

EXHIBIT 75: Financial Hardship Petition, dated September 8, 1999, by Community Health First, docketed September 9, 1999, indicating that James MacDonald is designated to represent Community Health First. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 76: Letter from City of Pittsburg to Energy Commission Chairman, William Keese, dated November 18, 1999. Sponsored by Applicant; received into evidence on November 18, 1999.

EXHIBIT 77: Four maps from the Environmental Protection Agency (EPA). Sponsored by Intervenor Californians for Renewal Energy; received into evidence on November 18, 1999.

GLOSSARY OF TERMS AND ACRONYMS

	A
A	Ampere
AAL	all aluminum (electricity conductor)
AAQS	Ambient Air Quality Standards
ABAG	Association of Bay Area Governments
AC	alternating current
ACE	Argus Cogeneration Expansion Project Army Corps of Engineers
ACSR	aluminum covered steel reinforced (electricity conductor)
AFC	Application for Certification
AFY	acre-feet per year
AHM	Acutely Hazardous Materials
ANSI	American National Standards Institute
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	Air Resources Board
ARCO	Atlantic Richfield Company
ASAE	American Society of Architectural Engineers
ASHRAE	American Society of Heating Refrigeration & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ATC	Authority to Construct
	B
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BAF	Basic American Foods
BARCT	Best Available Retrofit Control Technology
bbl	barrel
BCDC	Bay Conservation and Development Commission
BCF	billion cubic feet
Bcfd	billion cubic feet per day
b/d	barrels per day
BLM	Bureau of Land Management
BPA	U.S. Bonneville Power Administration
BR	Biennial Report
Btu	British thermal unit
	C
CAA	U.S. Clean Air Act
CAAQS	California Ambient Air Quality Standards
CALEPA	California Environmental Protection Agency
CALTRANS	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Code
CCAA	California Clean Air Act
CDF	California Department of Forestry
CDFG	California Department of Fish and Game
CEERT	Coalition for Energy Efficiency and Renewable Technologies
CEM	continuous emissions monitoring
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFB	circulating fluidized bed
CFCs	chloro-fluorocarbons
cfm	cubic feet per minute

CFR	Code of Federal Regulations
cfs	cubic feet per second
CLUP	Comprehensive Land Use Plan
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
COI	California Oregon Intertie
CPCN	Certificate of Public Convenience & Necessity
CPM	Compliance Project Manager
CPUC	California Public Utilities Commission
CT	combustion turbine current transformer
CTG	combustion turbine generator
CURE	California Unions for Reliable Energy
	D
dB	decibel
dB(A)	decibel on the A scale
DC	direct current
DCTL	Double Circuit Transmission Line
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DFG	California Department of Fish and Game
DHS	California Department of Health Services
DISCO	Distribution Company
DOC	Determination of Compliance
DOE	U.S. Department of Energy
DSM	demand side management
DTC	Desert Tortoise Council
DWR	California Department of Water Resources
	E
EDF	Environmental Defense Fund
Edison	Southern California Edison Company
EDR	Energy Development Report
EFS&EPD	Energy Facilities Siting and Environmental Protection Division
EIA	U.S. Energy Information Agency
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ELFIN	Electric Utility Financial and Production Simulation Model
EMF	electric and magnetic fields
EOR	East of River (Colorado River)
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
ER	Electricity Report
ERC	emission reduction credit {offset}
ESA	Endangered Species Act (Federal) Environmental Site Assessment
ETSR	Energy Technologies Status Report
	F
FAA	Federal Aviation Administration
FBE	Functional Basis Earthquake
FCAA	Federal Clean Air Act
FCC	Federal Communications Commission
FEIR	Final Environmental Impact Report
FIP	Federal Implementation Plan
FONSI	Finding of No-Significant Impact
FERC	Federal Energy Regulatory Commission
FSA	Final Staff Assessment G

GEP	good engineering practice
GIS	gas insulated switchgear geographic information system
gpd	gallons per day
gpm	gallons per minute
GW	gigawatt
GWh	gigawatt hour
	H
H_2S	hydrogen sulfide
HCP	habitat conservation plan
HHV	higher heating value
HRA	Health Risk Assessment
HRSG	heat recovery steam generator
HV	high voltage
HVAC	heating, ventilating and air conditioning
	I
IAR	Issues and Alternatives Report
IEA	International Energy Agency
IEEE	Institute of Electrical & Electronics Engineers
IID	Imperial Irrigation District
IIR	Issues Identification Report
IOU	Investor-Owned Utility
IS	Initial Study
ISO	Independent System Operator
	J
JES	Joint Environmental Statement
	K
KCAPCD	Kern County Air Pollution Control District
KCM	thousand circular mils (also KCmil) (electricity conductor)
KGRA	known geothermal resource area
km	kilometer
KOP	key observation point
KRCC	Kern River Cogeneration Company
kV	kilovolt
KVAR	kilovolt-ampere reactive
kW	kilowatt
kWe	kilowatt, electric
kWh	kilowatt hour
kWp	peak kilowatt
	L
LADWP	Los Angeles Department of Water and Power
LAER	Lowest Achievable Emission Rate
lbs	pounds
lbs/hr	pounds per hour
lbs/MMBtu	pounds per million British thermal units
LCAQMD	Lake County Air Quality Management District
LMUD	Lassen Municipal Utility District
LORS	laws, ordinances, regulations and standards
	M
m (M)	meter, million, mega, milli or thousand
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MCE	maximum credible earthquake
MCF	thousand cubic feet
MCL	Maximum Containment Level
MCM	thousand circular mil (electricity conductor)
$\mu g/m^3$	micro grams (10^{-6} grams) per cubic meter

MEID	Merced Irrigation District
MG	milli gauss
mgd	million gallons per day
MID	Modesto Irrigation District
MOU	Memorandum of Understanding
MPE	maximum probable earthquake
m/s	meters per second
MS	Mail Station
MVAR	megavolt-ampere reactive
MW	megawatt (million watts)
MWA	Mojave Water Agency
MWD	Metropolitan Water District
MWh	megawatt hour
MWp	peak megawatt
	N
N-1	one transmission circuit out
N-2	two transmission circuits out
NAAQS	National Ambient Air Quality Standards
NCPA	Northern California Power Agency
NEPA	National Energy Policy Act National Environmental Policy Act
NERC	National Electric Reliability Council
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NMHC	nonmethane hydrocarbons
NO	nitrogen oxide
NOI	Notice of Intention
NOL	North of Lugo
NO_x	nitrogen oxides
NO_2	nitrogen dioxide
NOP	Notice of Preparation (of EIR)
NOV	Notice of Violation
NRDC	Natural Resources Defense Council
NSCAPCD	Northern Sonoma County Air Pollution Control District
NSPS	New Source Performance Standards
NSR	New Source Review
	O
O_3	Ozone
OASIS	Open Access Same-Time Information System
OCB	oil circuit breaker
OCSG	Operating Capability Study Group
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration (or Act)
	P
PG&E	Pacific Gas & Electric Company
PDCI	Pacific DC Intertie
PHC(S)	Prehearing Conference (Statement)
PIFUA	Federal Powerplant & Industrial Fuel Use Act of 1978
PM	Project Manager particulate matter
PM_{10}	particulate matter 10 microns and smaller in diameter
$PM_{2.5}$	particulate matter 2.5 microns and smaller in diameter
ppb	parts per billion
ppm	parts per million
ppmvd	parts per million by volume, dry
ppt	parts per thousand
PRC	California Public Resources Code

PSD	Prevention of Significant Deterioration
PSRC	Plumas Sierra Rural Electric Cooperative
PT	potential transformer
PTO	Permit to Operate
PU	per unit
PURPA	Federal Public Utilities Regulatory Policy Act of 1978
PV	Palo Verde photovoltaic
PX	Power Exchange
	Q
QA/QC	Quality Assurance/Quality Control
QF	Qualifying Facility
	R
RACT	Reasonably Available Control Technology
RDF	refuse derived fuel
ROC	Report of Conversation reactive organic compounds
ROG	reactive organic gas
ROW	right of way
RWQCB	Regional Water Quality Control Board
	S
SACOG	Sacramento Area Council of Governments
SANBAG	San Bernardino Association of Governments
SANDAG	San Diego Association of Governments
SANDER	San Diego Energy Recovery Project
SB	Senate Bill
SCAB	South Coast Air Basin
SEGS	Solar Electric Generating Station
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCFM	standard cubic feet per minute
SCH	State Clearing House
SCIT	Southern California Import Transmission
SCR	Selective Catalytic Reduction
SCTL	single circuit transmission line
SDCAPCD	San Diego County Air Pollution Control District
SDG&E	San Diego Gas & Electric Company
SEPCO	Sacramento Ethanol and Power Cogeneration Project
SIC	Standard industrial classification
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAQMD	San Joaquin Valley Air Quality Management District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SMUDGEO	SMUD Geothermal
SNCR	Selective Noncatalytic Reduction
SNG	Synthetic Natural Gas
SO_2	sulfur dioxide
SO_x	sulfur oxides
SO_4	sulfates
SoCAL	Southern California Gas Company
SONGS	San Onofre Nuclear Generating Station
SPP	Sierra Pacific Power
STIG	steam injected gas turbine

SWP	State Water Project
SWRCB	State Water Resources Control Board
	T
TAC	Toxic Air Contaminant
TBtu	trillion Btu
TCF	trillion cubic feet
TCM	transportation control measure
TDS	total dissolved solids
TE	transmission engineering
TEOR	Thermally Enhanced Oil Recovery
TID	Turlock Irrigation District
TL	transmission line or lines
T-Line	transmission line
TOG	total organic gases
TPD	tons per day
TPY	tons per year
TS&N	Transmission Safety and Nuisance
TSE	Transmission System Engineering
TSIN	Transmission Services Information Network
TSP	total suspended particulate matter
	U
UBC	Uniform Building Code
UDC	Utility Displacement Credits
UDF	Utility Displacement Factor
UEG	Utility Electric Generator
USC(A)	United States Code (Annotated)
USCOE	U.S. Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
	V
VCAPCD	Ventura County Air Pollution Control District
VOC	volatile organic compounds
	W
W	Watt
WAA	Warren-Alquist Act
WEPEX	Western Energy Power Exchange
WICF	Western Interconnection Forum
WIEB	Western Interstate Energy Board
WOR	West of River (Colorado River)
WRTA	Western Region Transmission Association
WSCC	Western System Coordination Council
WSPP	Western System Power Pool