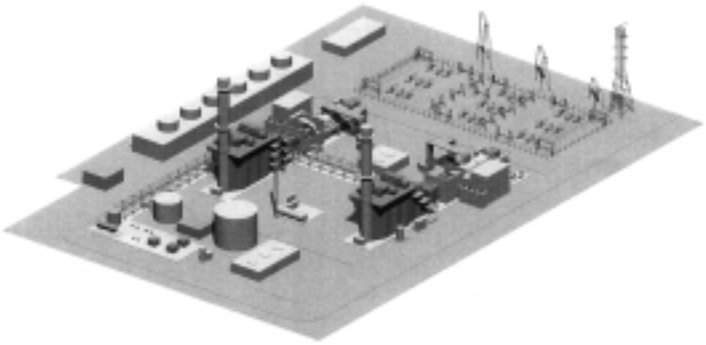
APPLICATION

Presiding Member's Proposed Decision

APPLICATION FOR CERTIFICATION

PITTSBURG DISTRICT ENERGY FACILITY

Docket No. 98-AFC-1

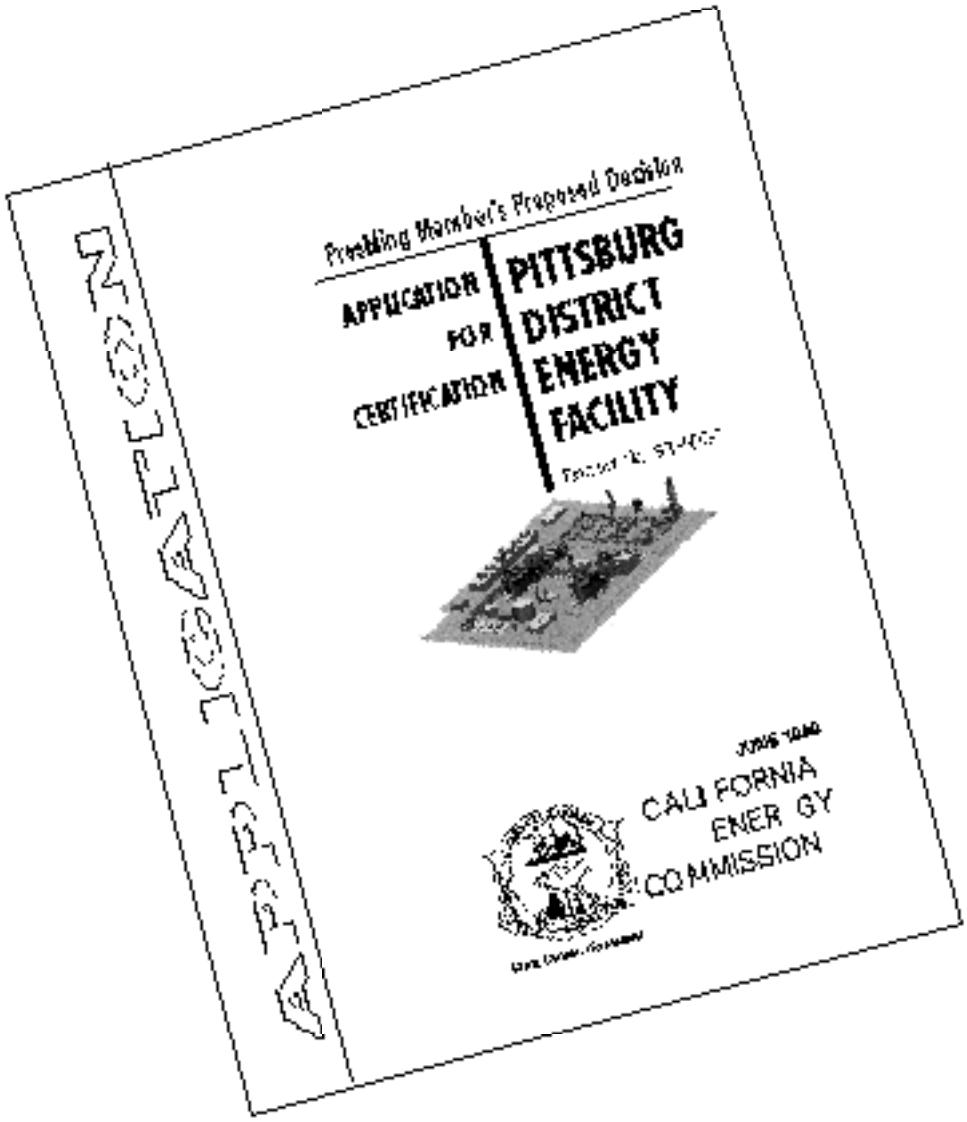


JUNE 1999

CALIFORNIA ENERGY COMMISSION

Gray Davis, *Governor*

P800-99-011



CALIFORNIA ENERGY COMMISSION

COMMITTEE MEMBERS

David A. Rohy, Ph.D., *Presiding Member*
Michal C. Moore, *Associate Member*

HEARING OFFICE

Susan Gefter, *Hearing Officer*

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

The Committee hereby submits its Presiding Member's Proposed Decision for the Pittsburg District Energy Facility Project (Docket Number 98-AFC-1). We have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code of Regs., §§ 1749-1752. 5). We recommend the Application for Certification for the Pittsburg District Energy Facility Project be approved, subject to the Conditions of Certification set forth herein, and that the Commission grant the Applicant a license to construct and operate the project.

Dated: _____

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

_____
DAVID A. ROHY, Ph.D., Vice Chair
Presiding Committee Member

_____
MICHAL C. MOORE, Commissioner
Associate Committee Member

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	**Docket No. 98-AFC-1**
	)	
Application for Certification for the Pittsburg District Energy Facility (PDEF)	)	**ERRATA TO THE PRESIDING MEMBER'S PROPOSED DECISION**
	)	
	)	

The following list of ERRATA identifies certain typographical corrections and other non-substantive clarifications to the Presiding Member's Proposed Decision (PMPD) as recommended by the Committee. These ERRATA will be considered by the Commission and incorporated by reference in the PMPD, which is scheduled for review by the full Commission at its August 17, 1999 hearing on this matter.

INTRODUCTION

A. SUMMARY OF THE PROPOSED DECISION

- p.2, para. 3, line 4, delete the following: …to mitigate project-related visual ~~and noise~~ impacts.
- P.3, para. 3, line 3 change to the District may not be able to and delete ~~cannot.~~
- P.3, para. 4, delete last sentence and replace with the parties have cooperated in developing a financial plan to assist the District in purchasing the necessary equipment.
- p.4, para.1, line 4, change to: in mid-2001" and delete: ~~late in the year 2001~~"

I. PROJECT DESCRIPTION

- p.1, para. 3, line 2: …turbine generators (CTG) with a shared steam turbine generator.
- p.9, last para., 1st line, add: While not part of the project, Applicant will also construct a two-lane Truck Bypass Road… .

- p.10, 2nd para., last sentence: Applicant has committed to provide funds to the City of Pittsburg for the construction of the ~~building~~ Central Park as one of the amenities… .

V. FACILITY AND ENGINEERING ASSESSMENT

A. FACILITY DESIGN

- p. 22, **CONDITION MECH-5**, para. 1, line 3: …that will be taken, ~~above and beyond adherence to the~~ to comply with applicable LORS,… .

C. POWER PLANT RELIABILITY

- p.2, Natural Hazards, Number 4., line.3: …at an elevation of 12 feet above mean sea level (MSL).

D. TRANSMISSION SYSTEM ENGINEERING

- p.2, 2nd full para., 1st sentence: The underground trenches will be ~~installed in an existing railroad right-of-way along~~ located under the eastbound lane of ~~the~~ 8th Street ~~corridor~~.

E. TRANSMISSION LINE SAFETY AND NUISANCE

- p.2, 1st full para., 3rd sentence: Applicant ~~measured~~ calculated the relevant field strengths… .

VI. PUBLIC HEALTH AND SAFETY ASSESSMENT

A. AIR QUALITY

- p.8, Table 4, make changes as shown below:

AIR QUALITY TABLE 4
Source of Offsets

SOURCE	No_x (tpy)	VOC (tpy)	PM_{10} (tpy)
Owens-Brockway Certificate #518	73.62		42.8
Owens-Brockway Certificate #518			11.57[1]
Owens-Brockway ~~Unbanked~~ Banked Credits	215.73		55.33
Owens-Brockway ~~Unbanked~~ Banked Credits		10.78	14.3[2]
Quebecor Printing San Jose, Inc. ~~Unbanked~~ Banked Credits		144	
1 Interpollutant offsets of 46.3 tpy of SOx (ratio of 4:1, which means that 4 tpy of SOx offset 1 tpy of directly emitted PM10) 2 Credits are for 138 tpy. Of this 57.2 tpy would be traded for PM10 (ratio of 4:1)			

Source: Exhibit 46, Table 11; March 10, 1999 letter to Mr. Dennis Jang (BAAQMD) from Samuel Wehn (PDEF).

- p.9, Number 7. Operation, 3rd sentence, delete text in strikeout as shown below:

  Upon Staff's recommendation, however, Applicant agreed to reduce its emission levels beyond those initially calculated. ~~because Staff's experience with other California power plants has shown that actual daily emission levels are significantly lower than permitted levels.~~

- p.10, Table 6, include new fn.2:

AIR QUALITY Table 6
Facility-Wide Maximum Permitted Daily and Annual Levels

		Total Facility
NO_x	lb/day	1190[1]
	Tons/yr	153.2
CO	lb/day	5224
	Tons/yr	487.3
VOC	lb/day	892
	Tons/yr	97.61
PM[2]	lb/day	842
	Tons/yr	123.55
SO_x	lb/day	272.4
	Tons/yr	39.86

[1] 1330 lb/day for up to 10 days per consecutive twelve month period.
[2] A very small amount of PM_{10} emissions may be generated from the cooling towers. The maximum worst case emissions would be about 10 lb/day and 2 tons per year.

Source: Conditions of Certification AQ-32, AQ-33

- p.11, 1st para., Number 8. Truck Bypass Road: delete entire paragraph and renumber following paragraphs on p.11 and 12 as follows: ~~9.~~8. Cumulative Impacts; ~~10.~~9. Public Comment.

- p.14, **FINDINGS**, Number 3., delete as shown in strikeout: The Bay Area is a federal attainment area for ~~O3~~, No_x, PM_{10}, Pb, and SO_2.

- p.17, **CONDITIONS AQ-4**, add to last line:…and CO emission limitations specified in conditions 21(a) through 21(d) and condition 22.

- p. 24-25, **CONDITION AQ-22**, (2)(d), amend as follows:

(d) The owner/operator shall maintain continuous emission monitor (CEM)~~.~~ data and complete records of plant emission performance under transient, non-steady state conditions.
~~(e) data and complete records of plant emission performance under transient, non-steady state conditions~~.
(e) The owner/operator shall record the Nox emission concentration and document the cause of each transient, days prior to the end of the Commissioning period.

- p.26, **CONDITION AQ-23**, last para., add the following at the end of 1st sentence: …during the combustion process.

- p.37, **AQ-50**, 1st sentence, make the following change:

  Prior to the start of construction of ~~this facility~~ the Pittsburg District Energy Facility, …

- p.38., **AQ-52**, 2nd sentence, 3rd line, substitute maximum for ~~minimum~~. It should read as follows:

  The cooling towers shall be equipped with high efficiency mist eliminators with a ~~minimum~~maximum guarantee drift rate of 0.0005%.

C. WORKER SAFETY AND FIRE PROTECTION

- p.3, para. 2, line 4 change request~~s~~ to requested.

- P.3, para.2, line 8, delete ~~The Committee will entertain…necessary. Pending resolution of this issue,~~ add: The parties have cooperated in developing a financial plan to assist the District in purchasing the necessary equipment,.

- p.6, **CONDITIONS WORKER SAFETY-2, Verification**, add 2nd paragraph as follows:

  The project owner shall notify the CPM that the Project Operation Safety and Heath 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.

- p.6, add new **CONDITION OF CERTIFICATION** and **Verification** and follows:

  WORKER SAFETY-3 The project owner shall design and install all exterior lighting to meet the requirements contained in the Visual Resources conditions of certification 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 illiminance contained in ANSI/IES RP-7 were used as a basis for the design and installation of the exterior lighting.

E. WASTE MANAGEMENT

- p.2, Number 3. Operation, 2nd para., 2nd sentence, 4th line, delete: ~~3-5 years~~ and change to 3 to 5 years… .

- p.3, Number 4. Wastewater, 2nd para, 1st sentence, should read as follows:

  During operation, wastewater from cooling tower blowdown will be ~~treated and~~ discharged to the Delta Diablo Sanitation District (DDSD)~~ or returned to the cooling tower basin~~.

VII. ENVIRONMENTAL ASSESSMENT

A. BIOLOGICAL RESOURCES

- p.2, Number 1. Project Site, end of 1st para., insert the following language:

  The Applicant proposed and staff agreed with measures that ensure the protection of biological resources, specifically wetland areas in close proximity to linear facilities. These measures are necessary during construction to avoid inadvertent impacts to these resources. Therefore, staff recommended inclusion of these measures in the Biological Resources Mitigation Implementation and Monitoring Plan that is required as a Condition of Certification.

- p.11, **CONDITION BIO-5**, insert the following bulleted item after last entry under Protocol:

  - 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, and show all locations requiring temporary protection/signs during construction on a map of suitable scale.

- p.13, delete **CONDITION BIO-7**, and replace with the following:

  BIO-6 Site disturbance and project construction shall not commence until the project owner has developed a protocol for inclusion in a Biological Resources Mitigation Implementation and Monitoring Plan to monitor for bird mortality due to collision with the stacks on the project site as well as the transmission lines. Mortalities associated with transmission lines shall, to the extent possible, be identified as to whether the cause is electrocution or collision with towers or conductors. The protocol shall include a thorough description of methods for collecting and recording this data.

As part of this protocol, a report describing the results after each year of monitoring shall be submitted to the CPM on the next closest annual report date established for the project in this decision. If the CPM determines that the report content or format requires changes, the project owner shall modify the report based on the CPM's comments.

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 CPM will review the Biological Resources Mitigation Implementation and Monitoring Plan submitted under condition of certification **BIO-5**. If the Biological Resources Mitigation Implementation and Monitoring Plan 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.

The CPM will review each monitoring report and, as deemed necessary, ask the project owner to modify and/or clarify the report content and/or format.

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, a determination of success or failure of such action will be made by the CPM after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made**."**

B. SOIL AND WATER

- p.14, **CONDITION SOIL&WATER-3, Verification**, delete "construction "and replace as follows: Two weeks prior to the start of ~~construction~~ commercial operation … .

D. PALEONTOLOGIC RESOURCES

- p.4, **CONDITION PAL-2**, delete 1st para:

PAL- 2: ~~At least ten (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.~~

- p.5, **CONDITION PAL-2**, 1st full sentence, delete: ~~Protocol:~~

- p.5, **CONDITION PAL-2**, 2nd full sentence, add: Protocol: The Paleontological Resources Monitoring Plan… .

VIII. LOCAL IMPACT ASSESSMENT

A. LAND USE

- p.5, number 5, Truck Bypass Road, delete ~~Truck Bypass Road~~ and add 1992 FEIR; delete entire 1st paragraph under Number 5. Add the following to the 2nd paragraph under Number 5: Although the Truck Bypass Road is not part of this certification proceeding, Staff noted that construction ….

- P.6, 1st full para., delete 1st sentence and 3rd sentence. Add promised by PDEF after ballfield in 2nd sentence.

- p.8, **CONDITION LAND-4**, line 2: …~~in coordination with~~ in a joint effort with the Delta Energy Center, a linear green… .

p.5, 1st para., line 4, delete: ~~Montezuma~~ and replace with Beacon.

B. TRAFFIC AND TRANSPORTATION

- p.9, delete 2nd full sentence and replace with The Commission has revised Condition **VIS-4** which requires PDEF to construct the 12-foot sound wall, but not the road, to mitigate project-related visual impacts.

- p.11, move **CONDITION TRANS-1** to the beginning of **CONDITION OF CERTIFICATION VIS-4;** delete **TRANS-1** **Verification** and renumber **CONDITIONS OF CERTIFICATION.**

- P.13, Finding No. 13, delete …~~and noise~~….

C. VISUAL RESOURCES

- p.3, 1st full para., line 4:

  …block views of several project features, including most transmission poles and almost all views of the power plant itself,… .

- p.8, **FINDING** 6, 1st sentence:

  6. The 12-foot sound wall associated with the Truck Bypass Road will block almost all views of the power plant and will block most transmission poles from view at residences. ~~project and transmission lines at residences along East Santa Fe Avenue and Columbia Streets.~~

- p.9, **CONDITION VIS-1**:

- p.9, **CONDITION VIS-1**, 2nd para., 1st word, Underline: Protocol:

- p.12, insert: **CONDITION OF CERTIFICATION TRANS-1** (from TRAFFIC AND TRANSPORTATION, page 11) incorporate with first paragraph of **CONDITION VIS-4;** add three months after the construction of the power plant begins.

- p.13, **CONDITION VIS-**5, para. 2, line 1, Insert: Protocol: The project owner shall submit a plan… .

- p.14, **CONDITION VIS-7, Verification**: At least 30 days prior to ~~installing the screening~~ restoring the landscaping, the project owner shall submit the plan to the CPM for review and approval.

- p.16, **CONDITION VIS-9**, para. 2, line 1, Underline: Protocol:

- p.16, **CONDITION VIS-9**, Number 1, line1, add the following language:

  1. a detailed landscaping plan, a readable scale, which includes a list of proposed tree and shrub species and sizes and a… .

D. NOISE

_ p.4, 4th para., 3rd line.,delete: ~~residential~~

· p.6, Number 3, 1st para:

3. As a ~~baseline~~ baseload project, PDEF will operate… .

· p.6, Number 4, 2nd para, 1st line, delete: ~~industrial~~

· p.9, paragraph below box, begin sentence with: Verification:

E. SOCIOECONOMICS

· p.5, 3rd full para., delete 2nd sentence. Replace with As a result of the workshop, the parties have cooperated in developing a financial plan to assist the District.

Appendix A: LORS: Air Quality section, page 2, last para., delete …~~Preliminary Determination of Compliance (PDOC), which will be issued in early March, 1999,~~ and replace with Final Determination of Compliance.

Dated:August 12, 1999

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

-signed

DAVID A. ROHY, Ph.D., Vice Chair
Presiding Member
PDEF Committee

signed

MICHAL C. MOORE, Commissioner
Associate Member
PDEF Committee

Mailed to List #712

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	**Docket No. 98-AFC-1**
	)	
Application for Certification for the PITTSBURG DISTRICT ENERGY FACILITY (PDEF)	)	***PROPOSED* COMMISSION ADOPTION ORDER**

This Commission Order hereby approves the Commission Decision on the Pittsburg District Energy Facility Project. It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter and the Committee Amendments and Errata thereto. The Commission Decision is based upon the evidentiary record of these proceedings (Docket No. 98-AFC-1) and considers the comments received at the August __, 1999 Business Meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and conditions imposed.

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

FINDINGS

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

1. The PDEF is a merchant power plant whose capital costs will not be borne by the state's electricity ratepayers.

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

3. Implementation of the Conditions of Certification contained in the accompanying text will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project will not result in any significant adverse environmental impacts, nor contribute substantially to significant adverse cumulative environmental impacts.

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

5. The evidence of record has established that are no feasible or environmentally superior alternatives to the project as described during these proceedings.

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

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

ORDER

Therefore, the Commission ORDERS the following:

1. The Application for Certification of the Pittsburg District Energy Facility described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification and Compliance Verifications enumerated in the accompanying text and Appendices. The Conditions and Compliance Verifications are integrated with this Decision and are not severable therefrom. While the project owner may delegate the performance of a Condition or Verification, the duty to ensure adequate performance of a Condition or Verification may not be delegated.

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

4. For purposes of judicial review pursuant to Public Resources Code section 25531, this Decision is final 30 days after its filing in the absence of the filing of a petition for reconsideration, or if a petition for reconsideration is filed within 30 days, upon the adoption and filing of an Order upon reconsideration with the Commission's Docket Unit.

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

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

Dated:_____

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

ROBERT PERNELL
Chairman

DAVID A. ROHY, Ph.D.
Vice Chair

MICHAL C. MOORE
Commissioner

ROBERT A. LAURIE
Commissioner

WILLIAM J. KEESE
Commissioner

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INTRODUCTION

THE INTRODUCTION INCLUDES A SUMMARY OF THIS PROPOSED DECISION, A DISCUSSION OF THE SITE CERTIFICATION PROCESS, AND THE PROCEDURAL HISTORY OF THIS PROCEEDING.

INTRODUCTION

A. SUMMARY OF THE PROPOSED DECISION

This Decision contains the Commission's rationale for determining that the Pittsburg District Energy Facility (PDEF or Applicant) complies with all applicable laws, ordinances, regulations, and standards, and may therefore be licensed. In this document, we summarize the evidence presented during public hearings conducted by the Commission's designated Committee. Our Decision is based exclusively upon the record established during these proceedings. In the Decision, we independently evaluate the evidence, provide references to the record[1] supporting our findings and conclusions, and specify measures required to ensure that PDEF is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

PDEF is a Limited Liability Corporation, established by Enron Corporation to develop a 500 megawatt (MW) combined cycle cogeneration power plant project and related facilities in eastern Contra Costa County. The project will be located in the City of Pittsburg on a 12-acre site on East 3rd Street between Harbor and Columbia Streets. The site is on the northwest corner of property owned by USS-POSCO Industries, which will receive approximately 75,000 pounds per hour of process steam and up to 60 MW of electricity from the power plant. The site includes a 20-acre construction laydown area to the south of the proposed site.

Project facilities also include a new single circuit 115 kilovolt (kV) overhead transmission line to USS-POSCO's existing substation; a new double circuit 115 kV overhead/underground line to connect PDEF to the Pacific Gas & Electric Company's (PG&E) switchyard at the existing Pittsburg Power Plant; and, pipeline facilities for natural gas and reclaimed water lines, which will be buried underground.

PDEF is the second merchant power plant to be licensed by the Energy Commission.[2] Approximately 450 MW of electricity produced by PDEF will be sold in the competitive market through the California Independent System Operator, as well as to wholesale power consumers pursuant to bilateral sales agreements.

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[1] References to the Reporter's Transcript of these proceedings appear as "date RT page". All dates refer to the year 1999.

[2] A merchant power plant is privately owned and not eligible for utility ratepayer guarantees or subsidies.

The City of Pittsburg and Enron are partners in an Alliance Agreement that provides for Pittsburg to receive 60 percent of the profits and Enron to receive 40 percent of the profits from eligible energy opportunity projects, including PDEF.

Enron also agreed to construct the Truck Bypass Road described in the City of Pittsburg's 1992 Final Environmental Impact Report (FEIR) on the Waterfront Truck Road. Evidence and public comment concerning the bypass road was presented at several hearings during these proceedings; however, the Commission has determined that the Truck Bypass Road is not part of the certification for PDEF. In particular, our discussion in the TRAFFIC AND TRANSPORTATION section of this document explains our views on this issue.

We conclude the Truck Bypass Road is a local matter between the City of Pittsburg, Enron, and the residents of Pittsburg's Central Addition neighborhood. Condition of Certification TRANS-1 is amended to require construction of the 12-foot sound wall and appropriate landscaping to mitigate project-related visual and noise impacts. It does not require PDEF to build the Truck Bypass Road.

During the certification review process, Commission staff consulted with several state and local agencies that administer laws applicable to this project. The project will use disinfected tertiary treated recycled water from the Delta Diablo Sanitation District (DDSD) in its cooling towers and other processes. DDSD provided valuable input in developing conditions to ensure compliance with pertinent rules on water quality.

The City of Antioch was an active Intervenor in this proceeding. Antioch was concerned that the project's discharge of recycled water to DDSD would adversely affect water quality in the area. The parties cooperated in sharing data and conducting complex modeling analyses that were presented during the public evidentiary hearings. After review of the analyses, the City of Antioch agreed that the project would not result in adverse impacts to water quality.

The Bay Area Air Quality Management District (BAAQMD) was responsible for coordinating input from the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), in consultation with Energy Commission staff, in drafting its Final Determination of Compliance (FDOC) on the project's conformity with state and federal air quality standards. PDEF has provided more than sufficient offsets, including local offsets, to comply with BAAQMD's requirements. Further, the project will use the best available control technology (BACT), identified by BAAQMD, to reduce emissions to insignificant levels. The conditions imposed by BAAQMD, including offsets and BACT, are incorporated by reference in this Decision.

Intervenor CAP-IT was concerned that there is no particulate (PM_{10} and $PM_{2.5}$) air monitoring station in the Pittsburg-Antioch area. Although testimony from the parties indicated that two existing particulate monitoring stations at Bethel Island and Concord accurately measure particulate levels that pertain to the project site, we conclude that the most accurate measurements would occur in the Pittsburg-Antioch area. Consequently, we believe CAP-IT's concerns have merit. We have added Condition of Certification AQ-58 to require PDEF, in cooperation with Calpine's Delta Energy Center and in consultation with BAAQMD, to purchase, install, and operate a particulate monitoring station in the Pittsburg-Antioch area.

The project's heat recovery steam generator (HRSG) stacks (150 feet tall) and its auxiliary boiler stack (100 feet tall) exceed the City of Pittsburg's Zoning Ordinance height limitation (95 feet). The Pittsburg City Council adopted a Resolution stating that the city would have granted a variance to PDEF if the city were the permitting agency. (Pittsburg Resolution No. 99-8854, June 7, 1999.) The Commission has relied on the city's Resolution to find that PDEF is eligible for the variance and, therefore, would conform with local land use requirements. We have added Condition of Certification LAND-7 to ensure that PDEF complies with the variance as described in the Resolution.

After the record was closed on the topic of Worker Safety and Fire Protection, the Contra Costa County Fire Protection District presented information to the Committee indicating that the District cannot provide an acceptable level of fire protection to the project. The District asserted that a fire engine and ladder truck at Fire Station # 84, which is the station that will respond to PDEF, are obsolete and need to be replaced.

The Committee directed the parties to discuss the Fire District's concerns at a public workshop and to seek a resolution that includes allocating costs proportionately between PDEF and Calpine's Delta Energy Center. The Committee scheduled an evidentiary hearing at the same time as the Conference on the Presiding Member's Proposed Decision to allow the parties to submit evidence into the record to resolve this matter.

The California Unions for Reliable Energy (CURE) was an active Intervenor in this proceeding. CURE presented evidence that the Contra Costa Building and Construction Trades Council has entered into a project labor agreement with Enron. The record was uncontroverted that thousands of skilled workers are available within commuting distance of the project. To the extent possible, the Trades Council will accommodate employment requests from local workers in the Pittsburg-Antioch area. Since most construction workers are expected to commute to the job site, there will not be an influx of new workers and their families to the area, and, therefore, no significant impacts to area housing or school districts.

Project construction is expected to commence later this year; capital costs are estimated at $300 million. The project will create a peak of 299 (and average of 194) construction jobs, as well as 20 permanent operational jobs. Commercial operation is anticipated to begin late in the year 2001.

B. SITE CERTIFICATION PROCESS

The PDEF and its related facilities are subject to California 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 of a project 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 the 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 an Application for Certification (AFC). Commission staff reviews the data submitted as part of the AFC, and recommends to the Commission whether or not 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 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 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 the project in a document called the "Staff Assessment".

The Committee subsequently 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 also 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 the 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, section 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 major procedural events that occurred in the present case are summarized below.

The Pittsburg District Energy Facility filed its Application for Certification (AFC) with the Energy Commission on June 15, 1998. The AFC was accepted as complete for filing on July 29, 1998, at which time the review process began. On September 3, 1998, the Committee conducted an Informational Hearing and a public Site Visit to the project site in Pittsburg. The following months involved the discovery phase of the proceeding when the Commission staff and other parties submitted data requests to the Applicant and received replies. During this time, the Committee monitored these activities through monthly status reports. In December 1998, the

Applicant filed a Supplement to the Application for Certification with project modifications.

Early in the process, various entities petitioned to intervene in the proceeding. These included the High Desert Power Project, filed on September 18, 1998;[3] the California Unions for Reliable Energy (CURE) on August 10, 1998; Calpine Corporation's Delta Energy Center[4] on September 18, 1998; the City of Antioch on January 8, 1999; and finally, CAP-IT on March 11, 1999.

Commission staff conducted a series of public workshops to receive comments and public input on the various subject areas included in the AFC. At least seven different staff-sponsored workshops were held in Pittsburg to ensure that members of the public were informed and were able to participate in the Commission's process. These workshops focused on various issues of concern to the public, including the Truck Bypass Road, air quality, public health, water resources, noise, and visual resources. Staff issued its Staff Assessment on March 11, 1999. Subsequent workshops were held in Pittsburg to discuss the Staff document. This document contains conclusions and recommendations for Conditions of Certification that apply to both the construction and operation of the proposed project.

In addition, the Committee assigned to this proceeding held two Status Conferences on December 15, 1998 and on February 17, 1999, to determine whether case development was progressing satisfactorily as well as to consider potential delays and other relevant matters that would require Committee attention. A Prehearing Conference was held in Pittsburg on March 16, 1999, to assess the parties' readiness for evidentiary hearings and to identify areas of agreement or dispute. The Committee then began Evidentiary Hearings on April 28, 1999. Additional evidentiary hearings were conducted on April 29, and May 3-4, 1999, in Pittsburg, a hearing on water resources and air quality on May 26, 1999, and a hearing on BAAQMD's Final Determination of Compliance on June 15, 1999. These hearings were held to establish the factual record necessary to reach a decision on the proposed project.

The disputed areas between Staff and Applicant included project-related visual impacts and air quality matters. The visual impacts issues were resolved by the date of the hearing on that subject. The air quality issues were resolved prior to the

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[3] Limited intervention was granted to this Petitioner for the purpose of obtaining information in a case that may assist in the resolution of issues in the High Desert Power Project Application, currently before the Energy Commission.

[4] The prospective Delta Energy Center (DEC) filed an Application for Certification with the Commission in December, 1998, to build an 880 MW project in the City of Pittsburg. Its status as Intervenor in this proceeding allows the Commission to include the DEC project in pertinent findings and conclusions where both PDEF and DEC activities overlap.

hearings on those issues; however, the record remained open until June 15 when the Final Determination of Compliance from the Bay Area Air Quality Management District was received into evidence.

At the local level, the Truck Bypass Road, which the Applicant agreed to build and which is peripheral to this project, has caused considerable public concern. There was extensive public comment on the routing for the bypass road. Ultimately, the Committee determined that the bypass road is not part of the certification process and, therefore, it should remain a local matter between the City of Pittsburg, Applicant, and the residents of the Central Addition neighborhood where the road would be built. The Committee found that there would be no project-related impacts if the road were not built.

The Committee, after establishing the evidentiary record, published the PMPD on June 30, 1999. A Conference on the PMPD, and an evidentiary hearing on the Contra Costa Fire Protection District's concerns, were held on July 20, 1999. The public comment period closed on July 30, 1999.

I. PROJECT DESCRIPTION AND OBJECTIVES

PROJECT DESCRIPTION AND OBJECTIVES

The Pittsburg District Energy Facility (PDEF or Applicant) is a limited liability corporation established by Enron Corporation to develop, construct, and operate a 500 megawatt (MW) natural gas-fired cogeneration power plant in the City of Pittsburg. (Ex. 1, p. 3.1-1.) As a cogeneraton facility, PDEF will provide 75,000 lb/hr of process steam to its steam host, USS-POSCO, and also sell up to 60 MW of electricity to USS-POSCO via a bilateral power sales agreement. Approximately 450 MW will be sold in the competitive marketplace through the California Independent System Operator (Cal-ISO) to serve power needs in the Bay Area. (4/28 RT 63, 88.)

The power plant will be located within the corporate boundaries of the City of Pittsburg in eastern Contra Costa County just south of New York Slough. (PROJECT DESCRIPTION Figure 1.) Applicant will construct the project on an existing industrial site currently owned and controlled by USS-POSCO Industries. Specifically, the site is a 12-acre area south of East 3rd Street between Harbor and Columbia Streets. Applicant will also use a temporary 20-acre construction laydown area adjacent to and south of the site. (PROJECT DESCRIPTION Figure 2.)

The facility consists of two “F” class natural gas-fired combined cycle combustion turbine generators (CTG) with a shared steam generator. (4/28 RT 91-92.) The CTG trains, including their exhaust stacks and step-up transformers, heat recovery steam generator (HRSG) units and their transformers, water treatment, and cooling towers will be arranged as shown on the plant layout in PROJECT DESCRIPTION Figure 3. Each power train will generate 259 MW of electricity. A 115 kV high voltage switchyard will be located on the westside of the site. A Control Room and Administrative Building will be located in the northwest quadrant of the site. (Ex. 7, p. 3-3.)

The CTGs produce thermal energy through the combustion of natural gas. The CTG converts this thermal energy into mechanical energy required to drive the CTG compressor and electric generator. CTG performance is enhanced with inlet air-cooling. The heat from the exhaust gases is recovered in the HRSG and converted to steam. HRSG duct burners are used to increase steam production. An auxiliary boiler is also available to produce steam. Steam is supplied to the steam turbine generator and to USS-POSCO. (Ex. 1, p. 3.4-1; 5/4 RT 24-25.)

Disinfected tertiary reclaimed water will be supplied by the Delta Diablo Sanitation District (DDSD) and used for cooling tower make-up, CTG inlet air cooling, and in the HRSGs. A six-cell bank of cooling towers will provide approximately 128,000 gallons per minute (gpm) of cooling water to the steam turbine condensers. The cooling tower basin acts as a reservoir for the cooling water system. Water discharge will be returned to DDSD. (Ex, 1, p. 3.4-1.)

PROJECT DESCRIPTION Figure 1 - NOT AVAILABLE IN PDF VERSION

PROJECT DESCRIPTION Figure 2 - NOT AVAILABLE IN PDF VERSION

PROJECT DESCRIPTION Figure 3 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 1, section 3

This was the original project footprint. The project has been turned 180 degrees moving the switchyard to the west and the administrative buildings to the east.

The initial control of Nitrogen Oxide (No_x) emissions from the combustion process will be achieved by utilizing Dry Low No_x technology. In addition, a Selective Catalytic Reduction (SCR) system will be employed as Best Available Control Technology (BACT), consisting of reduction catalyst and an aqueous ammonia injection system. (Ex. 1, p. 3.4-1.) A list of the major structures and equipment proposed for the project is shown in PROJECT DESCRIPTION Table 1. The equipment capacities are shown in PROJECT DESCRIPTION Table 2.

PROJECT DESCRIPTION Table 1
Pittsburg District Energy Facility - Major Structures and Equipment

DESCRIPTION	Length ft.	Width Ft.	Height ft.
Combustion Gas Turbines w/ Starter Package (CT)	70	40	20
CT Air Inlet Filters w/ Air Cooling	70	30	45
Generators w/ Enclosure	20	15	10
Fuel Gas Filter – Separator	20	20	10
Heat Recovery Steam Generators (HRSG)	135	40	70
HRSG Stacks		17'-6" dia	150
Selective Catalytic Reduction Skids	20	15	10
Auxiliary Boiler	50	50	50
Auxiliary Boiler Stack		4' dia	100
Aqueous Ammonia Storage Tanks		10' dia	18
Water Treatment Building	160	60	20
Demineralized Water Storage Tank		40' dia	30
Reclaimed Water Storage Tank		60' dia	30
Steam Turbine Pedestal w/Turbine, Generator, Condenser	95	40	40
Wet Cooling Tower	330	55	40
Administration Building / Control Room	90	50	15
Warehouse / Shops	40	40	20
Switchyard Busses and Towers	500	215	35
Electrical Control Building	50	50	15
Transmission Line Towers	40	40	75

Source: PDEF AFC, June 1998, Table 3.4.1-2; as modified by Ex. 7 and Ex. 29.

The linear facilities (transmission lines and pipelines) are shown in PROJECT DESCRIPTION Figure 4 (Exhibit 39.) There are two separate transmission lines with related facilities. To serve the electrical requirements of USS-POSCO, Applicant will construct a new 115 kV single circuit overhead transmission line about one mile long to be located entirely on USS-POSCO property. The line would travel south from the PDEF switchyard, then east just below the construction laydown area to USS-POSCO's existing substation. (Ex. 39.)

PROJECT DESCRIPTION Table 2 - NOT AVAILABLE IN PDF

Major Equipment Capacities

Source: Ex. 1, section 3

PROJECT DESCRIPTION Figure 4 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 39

PROJECT DESCRIPTION Figure 4

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Source: Ex. 39

The second transmission line will deliver electricity to the state's transmission grid via a new two-mile double circuit 115 kV overhead/underground line connecting PDEF to Pacific Gas & Electric's (PG&E) switchyard at the Pittsburg Power Plant. The overhead line will travel southwest from PDEF to the corner of 8th and Harbor Streets where it will transition underground and travel west about one mile beneath the 8th Street corridor. The line will resurface at a transition station above the northwest corner of the DDSD pumping station to the north of the 8th and Beacon Street intersection, and travel north about 0.5-mile to the PG&E substation. (Ex. 29, p. 1; Ex. 39.)

Both overhead lines will be strung on 75-foot tall steel or tubular poles spaced 250-500 feet apart. (Ex. 29 p. 1.) The footprint for the overhead/underground transition facilities will be approximately 90 ft. by 50 ft. with the superstructures approximately 30 ft tall. The underground line will be in a standard double circuit duct bank. The trench dimensions are 6 feet 6 inches deep by 23 feet wide. (Ex. 28, p.12.)

Reclaimed water will be supplied from DDSD via new 16 inch diameter underground supply and discharge pipelines that will travel south from DDSD to Pittsburg-Antioch Highway, travel west to Columbia Street, and then north to PDEF. These lines are approximately 2 miles long. (Ex. 28, p. 14.) Potable water will be supplied by the City of Pittsburg and used for firewater, drinking water, safety showers, sanitary facilities, and as emergency backup to DDSD. A short 500-foot underground water supply line will be constructed to the city's existing water service line. (*Ibid.*)

Applicant will construct a new 10-inch diameter natural gas pipeline to PG&E's existing SP-5 gasline 3.6 miles southeast of the site. The trench will be 2 feet wide by 5 feet deep. (Ex. 28, p. 14; See, Condition MECH-5 in FACILITY DESIGN.)

Applicant will also construct a two-lane Truck Bypass Road to support Pittsburg's effort to reroute existing marine terminal truck traffic as well as to provide improved access to the project site. The road will be 0.75-mile long, connecting East 14th Street, near Columbia to Harbor Street near East Santa Fe Boulevard. (Ex. 28, p. 14; Ex. 39.) A 12-foot sound wall will be constructed to separate the residences on Columbia Street and East Santa Fe Boulevard from the road. Landscaping will be installed along East Santa Fe to create a linear park. The existing baseball field will be relocated to the east. (*Ibid.*) Applicant will also construct a pedestrian overcrossing to the ballfield. Along the 8th Street corridor, Applicant will work with Delta Energy Center to develop a linear parkway. (4/28 RT 55, 89-90.)

1. Objectives

The power plant is conceived as a baseload project that is expected to have an overall availability of 95 percent or higher and to operate up to 8,760 hours a year. (Ex. 1, p. 3.1-1.) As described above, the project objectives include the cogeneration agreement to provide 75,000 lb/hr of steam and up to 60 MW of electricity to USS-POSCO. Applicant will sell about 450 MW in the competitive market to meet power needs of the Bay Area. Other objectives include construction of the Truck Bypass Road for the City of Pittsburg and improvements to the Central Addition.

Enron and the City of Pittsburg formed an Alliance Agreement that provides for Pittsburg to receive 60 percent of the profits from eligible energy opportunity projects and Enron to receive 40 percent of the profits. [1] (Exhibit 10.). The Pittsburg City Manager testified that profits received through the Alliance Agreement would provide funding to build Central Park, which has been requested for years by Central Addition residents. (4/28 RT 56.) Applicant has committed to building Central Park as one of the amenities included with construction of the Truck Bypass Road. (5/3 RT 161-162.)

Applicant expects construction of the project to take about 24 months, from mid-1999 to mid-2001, which would include an initial two months for engineering design. (4/28 RT 98.) Applicant anticipates that the project will be ready for full scale operation by the summer of 2001. (*Ibid*.) During construction, the peak work force will reach approximately 299 craft laborers, supervisory, and management personnel. The average workforce over the construction period will be about 170 personnel. The total construction payroll is estimated at $26.4 million. PDEF will employ about 20 fulltime plant operators and technicians for plant operation, with an estimated annual payroll of $1.4 million. The capital costs of the project are $200-300 million. (Ex. 28, p. 15.)

[1] Pittsburg City Manager, Jeff Kolin, testified that the City of Pittsburg established a municipal utility, the Pittsburg Power Company, that owns and operates electric and natural gas distribution systems on Mare Island in partnership with another energy developer. (4/28 49-50.) The Alliance Agreement resulted from Enron's response to Pittsburg's request for proposals (RFP) to develop energy-related projects in the city. (*Ibid.*)

II. NEED CONFORMANCE

NEED CONFORMANCE

The Commission must find that the project is in conformance 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.[1] The most recent Electricity Report is the *1996 Electricity Report* (***ER 96***) adopted on November 5, 1997.

The Application for Certification filed by the Pittsburg District Energy Facility (PDEF) was accepted on July 29, 1998. Therefore, ***ER 96*** is applicable to this project. (4/28 RT 110.) 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 500-megawatt PDEF will not exceed the 6,737-megawatt limit established in ***ER 96***. (Ex. 28, p. 17-18; Ex. 1, p. 1-2.). The only other project currently certified under ***ER 96*** has a 500-megawatt capacity. (Sutter Power Project, Publication No. P800-99-010.) The Commission notes that in its recently adopted *Addendum to* ***ER 96***, the 6,737-megawatt limit for new power plants has been eliminated. (Commission Order No. 99-0428-12.)

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

1. The *1996 Electricity Report* is the Commission's most recently adopted Electricity Report.
2. The need conformance criteria established in the *1996 Electricity Report* are applicable to the Pittsburg District Energy Facility.
3. The Pittsburg District Energy Facility satisfies the need conformance criteria established in the *1996 Electricity Report*.
4. The Pittsburg District Energy Facility conforms with applicable law relating to need conformance as identified in the pertinent portions of APPENDIX A of this Decision.

[1] See, Public Resources Code section 25523(f) and sections cited therein.

III. PROJECT ALTERNATIVES

ALTERNATIVES

An alternatives analysis is not required for cogeneration projects such as the PDEF project. [Pub. Resources Code, section 25540.6(b).] Nevertheless, Staff performed an alternatives analysis in response to public comments regarding other possible sites in the vicinity of USS-POSCO, the project's steam host. (Ex. 28, p. 439.) Typically, an alternatives analysis examines the feasibility of alternative sites and facilities that could substantially reduce a project's significant environmental impacts and still attain the project's basic objectives. [Cal. Code Regs., tit. 20, § 1765; Cal. Code of Regs., tit. 14, § 15112(d).] The analysis also includes a "no project" alternative. [*Id.*, § 15126(d)(2).]

SUMMARY OF EVIDENCE

1. Methodology

Staff's analysis was predicated on the following elements: the project objectives; the project description and potential adverse impacts; alternative electricity generation technologies; and, a feasibility assessment of the alternative sites. (See, Ex. 28, p. 440.)

2. Project Objectives

The project proposal includes the following objectives. (Ex. 1, §§ 2.0 and 6-0; 4/28 RT 64-66; Ex. 10; Ex. 28, p. 440.)

- To build and operate a reliable cogeneration power plant with a connection to USS-POSCO Industries in the City of Pittsburg. (4/28 RT 65-66.)

- To generate about 450 megawatts of electricity to be sold in the electricity market through the Independent System Operator. (Ex. 1, p. 1-1.)

- To provide up to 60 megawatts of electricity to USS-POSCO. (*Ibid*.)

- To provide approximately 75,000 pounds per hour (on average) of steam to USS-POSCO for use in its industrial processes. (*Ibid.)*

- To assist the City of Pittsburg by building a long planned waterfront truck route (Truck Bypass Road) designed to improve access to the 3rd Street industrial area, and to help Pittsburg realize its economic development goals. (4/28 RT 52-56.)

3. The Site

The project is located on an existing 12-acre industrial site owned by USS-POSCO in the northeast corner of the City of Pittsburg. The site lies within a 94-acre area known as "Area LB." The boundaries of "Area LB" are 3rd Street to the north; East Santa Fe Avenue to the south; Harbor Street to the west; and the USS-POSCO steel mill to the east. This location was chosen because it is a 12-acre industrial area available for development, and it is further away from residences (1800 feet) than possible sites fronting on Harbor Street or East Santa Fe Avenue. (Ex. 28, p. 441.)

4. Linear Facilities

Cogeneration projects require a steam line connection between the power plant site and the existing industrial steam host. The steam line is generally limited in length to one-half mile; otherwise there is a significant loss of heat.[7] Typically, therefore, site alternatives should be located within one-half mile of the steam host.

PDEF will use reclaimed water from the Delta Diablo Sanitation District (DDSD), necessitating construction of new, underground water pipelines to and from the power plant and DDSD. Applicant has chosen a route that avoids impacts to Dowest Slough, which is located just west of DDSD. (See facilities map, Ex. 39, in PROJECT DESCRIPTION.)

The project's new underground gas pipeline will connect to an existing Pacific Gas and Electric (PG&E) gas pipeline located approximately 3 miles southeast of the PDEF site. PG&E's Preliminary Facilities study for PDEF indicates that the project's transmission line must interconnect with the existing Pittsburg Power Plant substation located approximately two miles west of the proposed site.[8] (Ex. 39.)

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[7] Cogeneration steam lines can never be perfectly insulated to reduce heat losses. When the line is longer than about one-half mile, the quality of steam that must be supplied detracts from the power plant's efficiency and can make the cogeneration project less economic.

[8] The applicant had originally proposed a transmission connection to an existing PG&E 115 kV line located east of Loveridge Road. However, the December 1998 Preliminary Facilities Study showed that this option could lead to numerous circuit overloads, whereas a connection to the Pittsburg Power Plant substation appeared to be more feasible. Geographically, there are two options for connecting the PDEF with the substation, which is west of the densely developed Downtown /Marina area of Pittsburg: 1) running an underground line from the site west along 3rd Street and across Marina Park; and 2) running an overhead line from the site to Harbor and 8th Streets, where the line would run underground along 8th Street.

5. Potential Impacts

The environmental consequences of the project will be mitigated as discussed in the individual sections of this Decision. 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.

PROJECT ALTERNATIVES

1. Generation Technology Alternatives

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. 28, p. 442.)

There are geothermal resources to the north at The Geysers in Sonoma and Lake Counties. However, The Geysers are currently an uncertain steam resource, and the distance from The Geysers to Pittsburg would preclude their use for a cogeneration project. Solar and hydroelectric resources in the San Francisco Bay Area region are insufficient for commercial scale electricity generation. 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, would preclude its use for a cogeneration project. Staff, therefore, concluded that there are no local generation technology alternatives to reliably serve a cogeneration project that must be close to its industrial steam host. (Ex. 28, p. 442.)

Staff also considered the possibility of a smaller sized cogeneration alternative, such as a 240 MW gas-fired combined cycle project, located at the PDEF site. Although the actual quantity of emissions would be less, the emissions from both the 500 MW proposed project and a smaller project would be offset. Staff concluded that the smaller project alternative would not result in a greater reduction of potential impacts. In addition, Applicant would most likely be required to interconnect at the PG&E facility in this scenario and would require similar transition facilities to underground its transmission line along 8th Street. (Ex. 28, p. 442.)

2. Site Alternatives

Staff reviewed alternative sites identified by Applicant and USS-POSCO, as well as those identified by public comment, including the proposed Air Liquide project site, the proposed Delta Energy Center site, and other areas within USS-POSCO's property. See ALTERNATIVES Figure 1.

a. Dow Chemical Site

i. Site Description

This 10-acre site is located on the New York Slough waterfront at the western edge of Dow Chemical's property. A power plant and related transmission line at this alternative site would be visible to boaters along New York Slough. Staff concluded, however, that any visual impacts would be insignificant given the highly industrialized nature of the area, and the boaters' brief exposure.

Staff assumed that a project located at this alternative site would have a 115 kV transmission line and related towers on a route currently occupied by PG&E's Contra-Costa Pittsburg 60 kV line to the intersection of 3rd and Columbia Streets. Thus, the placement of the towers and transition stations would be similar to that of the proposed project. Although this potential transmission route is longer, the visual impact would be similar to that of the proposed project. The additional section along the waterfront would likely replace an existing line in a highly industrial area, and its exposure to boaters would be brief.

Surrounding land uses include Dow Chemical's production facilities, and USS-POSCO's marine dock and truck loading yard/parking lot. The General Industrial (IG) zoning and General Plan designations are compatible with industrial uses. The nearest residence is approximately one mile away.

ii. Advantages

A project located at this alternative site would be further away from residences than the proposed site. Therefore, potential noise impacts would be diminished when compared with the proposed project.

iii. Disadvantages

Although Applicant discussed this alternative with Dow Chemical, the site is not available since "other Dow activities precluded locating the plant on Dow property." (Ex. 1, p. 6-3.)

ALTERNATIVES Figure 1 - NOT AVAILABLE IN PDF VERSION

b. Air Liquide Site

i. Site Description

This 5 acre site is located adjacent to the proposed site; immediately east of the USS-POSCO steel mill facility on 3rd Street where it intersects Columbia Street. Zoning and General Plan designations are compatible with industrial use. The nearest residences are located approximately 2,000 feet away. Staff assumed that a project located at this alternative site would have transmission line towers and transition stations located on a similar route to that of the proposed project.

ii. Advantages

This alternative site is nominally further away from residences than the proposed site. Therefore, potential noise impacts would be slightly diminished when compared with the proposed project.

iii. Disadvantages

The site is not available. USS-POSCO has contracted with the Air Liquide Company for development of an industrial gas production facility at this site. Although the Air Liquide project appears to be inactive right now, the contract remains valid. Moreover, the site is smaller than the 12 acres required by the Applicant.

c. Delta Energy Center Site

i. Site Description

In December 1998, Calpine Corporation filed an AFC with the Energy Commission to build the Delta Energy Center, an 880 MW power plant on Dow Chemical property. The 20-acre site is located on Arcy Lane north of the Pittsburg-Antioch Highway and east of Loveridge Road. The parcel is in the City of Pittsburg, just east of the corporate boundary between the Cities of Pittsburg and Antioch.

Zoning and General Plan designations are compatible with industrial use. Surrounding land uses include the Delta Diablo Sanitation District (DDSD) to the south, Dow Chemical facilities to the north, and vacant land owned by Dow Chemical. The nearest residence is located approximately 2300 feet away.

Staff assumed that a project located at this site would have an overhead 115 or 230 kV transmission line paralleling or replacing an existing PG&E 115 kV line that runs through USS-POSCO. At the intersection of Harbor and 8th Streets, the assumed transmission route would be similar to the proposed project, with transition stations and underground line along the 8th Street corridor to the Pittsburg Power Plant substation.

ii. Advantages

This alternative site is further from residences than the proposed site.

iii. Disadvantages

The site is not available to this Applicant. Even if it were available, it is approximately one mile away from the center of USS-POSCO's mill facility resulting in a steam line longer than a half-mile, compromising the feasibility of a cogeneration project to serve USS-POSCO.

d. Site Alternative Possibilities within USS-POSCO Property

i. Site Description

USS-POSCO owns an undeveloped parcel, "Area LA," which is approximately 170 acres in size. The area's western boundary is east of the baseball field near Columbia Street on the Pittsburg-Antioch Highway, with the southern boundary fronting on the Pittsburg-Antioch Highway. The northern boundary is formed by several of USS-POSCO's buildings, and the eastern boundary is near Loveridge Road. Residential development is located approximately 2,000 feet from the area's northeastern boundary.

Staff assumed that a project located at this alternative site would have an overhead 115 or 230 kV transmission line paralleling or replacing an existing PG&E 115 kV line that runs through USS-POSCO. At the intersection of Harbor and 8th Streets, the transmission route would be similar to the proposed project, with transition stations and an underground line running along 8th Street to the Pittsburg Power Plant substation.

ii. Advantages

This area is nominally further away from residences than the proposed site.

iii. Disadvantages

This area is in the very preliminary stages of soil remediation, with years of work ahead before industrial site development will be possible.

e. "No Project" Alternative

Staff considered the advantages and disadvantages of the "no project" alternative. Initially, Staff considered the "no project" alternative to be superior due to the potential visual impacts of the project. However, in response to Staff's concerns, the Applicant modified the project to reduce the height of its transmission towers from 150 feet to 75 feet and to add landscaping as appropriate to mitigate the visual impacts. (4/28 RT 69; see, VISUAL RESOURCES section.)

i. Advantages.

The visual impacts of the project's transmission lines would be avoided. The steam plume and project structure would also be avoided, and 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. Such future project may or may not have steam plumes. A future project would be unlikely to have transmission facilities of the size required by the PDEF project unless such future project is another large power plant.

ii. Disadvantages.

The energy efficiency advantages of a large industrial cogeneration project would not be realized. The City of Pittsburg would not realize the benefits of "profit sharing" that it hopes to achieve. (Ex. 28, p. 447; 4/28 RT 50-55.) The new Truck Bypass Road would not be built with assistance from PDEF, and perhaps would not be built at all. The Truck Bypass Road is considered an environmental benefit by the City of Pittsburg since the road would improve traffic circulation impacts. (*Ibid.*) Finally, the "no project" alternative would likely result in the construction of a new large electricity generating power plant elsewhere in the San Francisco Bay Area. (Ex. 28, p. 447.)

COMMISSION DISCUSSION

Section 25540.6 (b) of the Warren-Alquist Act does not require an alternatives analysis for cogeneration projects. [Pub. Resources Code § 25540.6(b).] With the benefit of this analysis, however, the record is even more persuasive that Applicant has chosen an appropriate site to meet project objectives.

The evidentiary record indicates that the alternative sites are either unavailable or infeasible. None of the alternative sites in Pittsburg would reduce the potential visual impacts from transmission towers and transition facilities. The option of a smaller project, such as a 240 MW cogeneration facility at the proposed site, would result in similar visual impacts, similar air emissions, similar onsite project components, and similar linear facility routes. All of these potential impacts would be mitigated for a smaller project just as they will be for the proposed project. Thus, there is no advantage to a smaller project option. While the "no project" alternative may temporarily avoid the project's potential impacts, the benefits of the project would not be realized. Moreover, the industrial site is likely to be developed in any event, requiring environmental impacts analyses and mitigation measures similar to those required of PDEF.

FINDINGS AND CONCLUSIONS

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

1. The proposed site is located on USS-POSCO property in a highly industrialized area of the City of Pittsburg.
2. The proposed project is a natural gas-fired 500 MW cogeneration facility that will supply process steam to USS-POSCO, the steam host.
3. Cogeneration projects are typically located within one-half mile of the steam host to prevent heat loss.
4. An alternatives analysis is not required for cogeneration projects at existing industrial sites but this analysis was performed in response to public comment.
5. There are no feasible technology alternatives such as geothermal, solar, hydroelectric, or wind resources located near the steam host.
6. Feasible alternative sites located near the steam host are not available to Applicant.
7. A smaller project such as a 250 MW power plant is not a better alternative because it would have the same potential environmental impacts as the proposed project.
8. The benefits of the proposed project would not be realized under the "no project" alternative.

The Commission concludes, therefore, that none of the alternatives are better or more feasible to 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

GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

INTRODUCTION

The Pittsburg District Energy Facility Project General Conditions including the Compliance Monitoring and Closure Plan (Compliance Plan) has been established as required by Public Resources Code, section 25532. The plan provides a means for assuring that the facility is constructed, operated and closed in conjunction with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Energy Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of the following elements:

1. General conditions that:

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

2. <u>Specific conditions of certification</u> which are found following each technical area contain the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of verifying that the condition has been satisfied.

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. ensure that the compliance files are maintained and accessible.

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

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

Pre-Construction and Pre-Operation Compliance Meeting

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

Energy Commission Record

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

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

2. all monthly and annual compliance reports filed by the project owner;

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

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

PROJECT OWNER RESPONSIBILITIES

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

Access

The CPM has the responsibility to ensure that the project is designed, constructed, operated and closed in compliance with the terms and conditions of the Commission Decision. Without access to the facility, it is virtually impossible to determine whether or not the project owner is complying with the conditions of certification. Therefore, 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 compliance record serves as verification that the project was designed, constructed and operated in compliance with the terms and conditions of the Commission Decision. The documents contained in the compliance record demonstrate that the project owner, or its designated agents, complied with the conditions of certification. The project owner shall maintain project files on-site or at an alternative site approved by the CPM, for the life of the project. The files shall contain copies of all “as-built” drawings, all documents submitted as verification for conditions, and all other project-related documents for the life of the project, unless a lesser period is specified by the conditions of certification.

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

Compliance Verifications

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission’s procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified, as necessary, by the CPM, in most cases without Energy Commission approval.

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

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

2. appropriate letters from delegate agencies verifying compliance;

3. Energy Commission staff audit of project records; and/or

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

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 Submittal 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
Pittsburg District Energy Facility (98-AFC-1C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

Compliance Reporting

The project owner shall provide compliance reports to keep the CPM apprised of what is occurring on the power plant site during both the construction and operation

phases. There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports.

During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

Compliance Matrix

A compliance matrix is to be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix will 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., 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. The Monthly Compliance Report allows the CPM to keep track of the progress being made by the project owner during the construction phase. The CPM uses the Monthly Compliance Report to schedule site visits and to maintain a database of the project owner’s compliance with the conditions of certification.

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 Energy Commission business meeting at which 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

Upon completion of the source test, the air district will issue a Permit to Operate and the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each calendar year of commercial operation and are due to the CEC CPM by February 15th of the year immediately following the reporting year. The CPM uses the Annual Compliance Report along with periodic site visits to ensure that the project owner is complying with on-going or operational conditions of certification.

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

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

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

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

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

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

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

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

8. a listing of the year's additions to the on-site compliance file with a brief explanation of what the addition is, 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 Energy Commission's Docket with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information, which is determined to be confidential, shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq.

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code, section 711.4, the project owner must remit to the California Department of Fish and Game (CDFG) a filing fee in the amount of eight hundred and fifty dollars ($850). The fee must be paid on or before the tenth day following the Energy Commission business meeting at which the project was approved. No construction may commence until the fees have been paid in full, and proof of payment is submitted to the CPM.

The project owner shall submit a copy of the CDFG receipt to the CPM within 30 days of the Energy Commission business meeting at which the project was approved. The receipt shall identify the project, indicate the date paid and specify the amount paid.

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

There are at least three circumstances in which a facility closure can take place, planned closure, unexpected <u>temporary</u> closure and unexpected <u>permanent</u> 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 both when an owner is implementing the on-site contingency plan, and when the project owner has abandoned the project.

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 (LORS), and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least twelve months prior to commencement of closure activities (or other period of time agreed to by the CPM). The project owner shall file 125 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall a) identify and discuss impacts associated with the proposed facility closure activities and 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, b) identify any facilities or equipment intended to remain on site after closure and the reason, and any future use, and c) address conformance of the plan with all applicable LORS, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

The project owner shall not commence facility closure activities, with the exception of measures to eliminate any immediate threats to health and safety or the environment, 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 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may recommend revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the

Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for 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 and removal of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment (also see specific conditions of certification for the technical areas of Facility Design, Transmission Line Engineering and Paleontologic Resources).

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

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 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 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

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

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment.

(Also see specific conditions of certification for the technical areas of Facility Design, Transmission Line Engineering and Paleontologic Resources).

Furthermore, the plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment.

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

DELEGATE AGENCIES

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

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

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

ENFORCEMENT

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

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

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy

Commission pursuant to Title 20, California Code of Regulations, section 1230 et. seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure 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 Energy Commission, or any other person, including members of the public, may initiate this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any person including the Energy Commission's delegate agents.

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

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

Request for Informal Investigation

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

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

Request for Informal Meeting

In the event that either the person requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the

event, or corrective measures undertaken, either person may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within fourteen (14) days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

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

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

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.

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

Formal Dispute Resolution Procedure-Complaints and Investigations

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

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, sections 1232 - 1236).

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

The project owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the project design or operational requirements; 3) transfer ownership or operational control of the facility; or 4) change a condition verification requirement.

A petition is required for **amendments** and for **insignificant (staff) changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the

petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209. The criteria that determine which type of change process applies are explained below.

Amendment

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

Insignificant Staff Change

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

KEY EVENT LIST

PROJECT _____ 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	

V. FACILITY and ENGINEERING ASSESSMENT

THE BROAD ENGINEERING ASSESSMENT CONDUCTED FOR THE PITTSBURG DISTRICT ENERGY FACILITY CONSISTS OF ELEMENTS AFFECTING THE FACILITY DESIGN, AS WELL AS THE EFFICIENCY AND THE 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 describes the preliminary facility design for the project. [1] Since the project is in the preliminary design stage,[2] the analysis of record is limited to assessing whether the proposed design has been described with sufficient detail to provide reasonable assurance that the project will be constructed in conformity with all applicable laws. In addition, the analysis considers whether there are 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 create a design review and construction inspection process to ensure compliance with the applicable design standards and any special design requirements. (5/4 RT 36.) In particular, Staff confirmed that the 1998 California Building Code (CBC) or successor edition is the applicable design code for PDEF. (Ex. 28, p. 369; 5/3/99 RT 36, 40.) Condition GEN-1 incorporates this requirement.[3]

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. 28, pp. 368-376.)

Staff was concerned that PDEF's natural gas pipeline would pass through residential areas in Antioch to its interconnection point with the PG&E gas line. While the gas line will utilize an existing utility corridor, the proximity to residences requires special attention to adherence to all applicable laws.[4] (Ex. 28, pp. 369-370.) Since there are existing gas and water pipelines where PDEF will trench its new pipeline, Staff recommended that PDEF bury its pipeline one

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[1] See, Ex. 1, §§ 3, 4, 5.3; Appendices A-H and N; Ex. 7.

[2] Applicant will select an Engineering Procurement and Construction (EPC) contractor to finalize project design and construct the project. (5/4 RT 27-28.)

[3] Staff clarified that the code in effect at the time the first designs are submitted for approval will be used for the entire project. (5/3 RT 41.)

[4] Gas pipeline location near residences is designated a Class 3 installation under Title 49, Code of Federal Regulations, Part 192, requiring the most stringent safety measures in pipeline construction. (Ex. 28, p. 369.)

foot deeper (6 feet) than currently proposed (5 feet) to prevent damage to the existing pipelines. (*Id.,* pp. 370, 374.) Condition MECH-5 incorporates Staff's proposal and requires that the design plan for the new gas pipeline comply with applicable laws, ordinances, regulations, and standards 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.[5] The principal geologic hazards at the site are seismically-induced ground shaking and liquefaction.[6] (Ex. 28, pp. 374-375.)

The peak horizontal ground acceleration for the power plant is based on a 6.7 magnitude earthquake occurring on the Pittsburg-Kirby Hills Fault, which is located about 2 kilometers north of the site. To mitigate the seismic shaking potential, PDEF facilities must be designed to the Zone 4 requirements for facilities within 10 kilometers of a near-source zone. (Ex. 1, § 5.3; Ex. 28, p. 375.)

Staff identified several project components that require dynamic analysis for seismic events to comply with Section 1629.5 and Tables 16M and 16L 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. (5/4/99 RT 37.) To ensure that the components that require dynamic analysis will actually receive this treatment, Staff proposed that Applicant agree to a list of such items before final design approval. Condition STRUC-1 incorporates this proposal.

Applicant also found that the linear facility corridors may be subject to potentially significant seismically-induced ground shaking and liquefaction. (Ex. 7, p. 5.3-2.) Mitigation measures incorporated in the Conditions of Certification will reduce geologic hazards to acceptable levels. (*Ibid.*)

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 listed below require Applicant to implement the mitigation measures identified in the record to ensure compliance with the applicable LORS.

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[5] Staff 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. (Ex. 28, p. 375, fn. 3.)

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

FINDINGS AND CONCLUSIONS

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

1. The proposed PDEF 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 concludes that implementation of the Conditions of Certification as set forth below will ensure that the PDEF 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 California Building Code (CBC)[7] and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. The CBC in effect is that edition that has been adopted by the California Building Standards Commission, and published at least 180 days previously.

In the event that the PDEF is designed to a successor edition to the 1998 CBC, the 1998 CBC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

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

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

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

Circulating Water Pumps

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 has 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.

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 5 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 5 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 Section 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.

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.

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

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.]

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.

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.

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 5 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 and Section – 1701.5 Type of Work (requiring special inspection), 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 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 in the Monthly Compliance 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 5 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, Contra Costa County 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.

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 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, Contra Costa County 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.

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 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 CBO 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 CBO approval is needed. The CBO will approve or disapprove of the engineering geologist(s) and will notify the project owner and CPM 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 to the CBO and CPM. The CBO will approve or disapprove of the engineering geologist(s) and will notify the project owner and the CPM of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist 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 Geologic Report.

Protocol: The Engineering Geology Report required by the 1998 CBC, Appendix Chapter 33, Section 3309.3 Grading Designation, and 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 Geologic Report to be completed after completion of grading, as required by the 1998 CBC, Appendix Chapter 33, Section 3318.1, and shall contain final description of the geology of the site and any new information disclosed during the grading, and the effect of same on recommendations incorporated in the approved grading plan. Engineering geologists shall submit a statement that, to the best of their knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and

applicable provisions of the 1998 CBC, Appendix Chapter 33, Section 3318.1.

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 Geologic Report required by the 1998 CBC, Appendix Chapter 33, Section 3318 Completion of Work, to the CPM and the CBO.

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

Protocol:

- design of the proposed drainage structures and the grading plan;
- an erosion and sedimentation control plan;
- related calculations and specifications, signed and stamped by the responsible civil engineer; and
- 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 5 days, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 5 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, 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 5 days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM an NCR, and the proposed corrective action. Within 5 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.

CIVIL-5 Deleterious and/or contaminated materials and soils are to be mitigated in a manner acceptable to the CBO.

The project grading plans and specifications are to include steps to assure the stability of the foundation of the power plant with respect to differential settlement.

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 in the next Monthly Compliance Report a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and are in conformance with the requirements set forth in the applicable LORS.

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. large field fabricated tanks;
4. turbine/generator pedestal; and
5. switchyard structures.

The project owner shall:

1. obtain agreement with the CBO 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 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 5 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 applicable CBC chapter and section. Within 5 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 5 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: $I = 1.25$, $I_p=1.5$ 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 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, as necessary, 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.

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

At least 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.

MECH-5 Prior to construction of the natural gas pipeline, the project owner shall provide a plan to the CPM, for approval, detailing the measures that will be taken, above and beyond adherence to the applicable LORS, to ensure safety during installation and operation of the pipeline, particularly that portion passing near residences. The plan shall address any design features, such as increased depth, a protective cap, and special construction techniques that will be incorporated in installation of the pipeline.

The LORS applicable to the natural gas pipeline include the following:

1. Title 49 Code of Federal Regulations, Parts 191 and 192
2. California Health and Safety Code Sections 13107.5 and 25504
3. California Public Utilities Commission General Order 112-E

Verification: At least 30 days prior to the beginning of construction of the natural gas pipeline, the project owner shall provide to the CPM the plan described herein for approval. Any actual construction deviations from this plan shall be reported and dealt with per the requirements of Condition of Certification **GEN-7** above.

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 this Commission 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 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 would 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 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, Appendix F.) 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. (4/28 RT 73-74.)

1. Potential Adverse Effects on Energy Supplies and Resources

Power plants that fall within the Commission's jurisdiction consume large amounts of energy.[1] (Ex. 28, p. 409.) PDEF will burn natural gas at a maximum rate exceeding 29 trillion Btu per year. (Ex. 1, Appendix M.) While this is a substantial rate of energy consumption, PDEF will purchase gas on the open market, drawing from plentiful supplies in California, Canada, and Texas. (Ex. 1, p. 3.9-2; 4/28 RT 74.) These sources can supply far more gas than required by PDEF, thus creating no adverse impacts on energy supplies or resources. (*Ibid*.)

2. Additional Energy Supply Requirements

The natural gas pipeline system in California is so large and well-established that there is no likelihood that PDEF would require development of any new sources of energy. (4/28 74; Ex. 28, p. 409.)

3. Wasteful or Inefficient Energy Consumption

The project's energy consumption could be considered wasteful or inefficient if an alternative source of electricity were available that would be significantly more fuel efficient. PDEF represents the current state-of-the-art in electric generation efficiency. (4/28 RT 74.) The project will use modern F-class gas turbines manufactured by General Electric, nominally rated at 56.5 percent efficiency.[2] (Ex. 28, p. 411.) This

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

[2] PDEF will employ a two-gas-turbine, combined cycle power train, i.e., the General Electric S207FA, nominally rated at 529.9 MW and 56.5 percent efficiency. (Ex. 28, p. 410.)

efficiency rating compares favorably to other F-class generators currently available on the market. (*Ibid*.)

Staff's witness testified that PDEF would generate electricity at peak load efficiency of about 51.5 percent compared with the average efficiency of a typical utility company baseload plant estimated at approximately 32 percent. (4/28 RT 75.) Staff, therefore, anticipates that PDEF will likely displace older, less efficient power plants in the utility system. (Ex. 28, p. 412.)

Applicant considered alternative generating technologies such as oil and coal burning, solar, wind, hydroelectric, and geothermal. (Ex. 1, § 6.2.2.) Given the project objectives, location, and air pollution control requirements, Staff agreed with Applicant that only natural gas-burning technologies are feasible. (Ex. 28, p. 410.)

4. Compliance with Existing Energy Standards

Section 25540.6(a) of the Public Resources Code exempts cogeneration facilities from the Notice of Intention requirements contained in Public Resources Code Section 25502. As a proposed cogeneration facility, PDEF was deemed exempt from filing a Notice of Intention.

PDEF must comply with the requirements of a cogeneration facility as defined in Public Resources Code Section 25134. To establish eligibility for cogeneration status, at least five percent of the energy produced by the project must be in the form of heat energy delivered to the cogeneration host. This is the "operating standard." (4/28 RT 75.) The project's calculated cogeneration efficiency must equal to or exceed 42.5 percent. This is the "efficiency standard." (*Ibid*.)

The project will generate up to 500 MW of electricity as a baseload facility, operating up to 95 percent of the time, and will supply about 75,000 pounds per hour of steam to the steam host, USS-POSCO. (Ex. 28, p. 412.) Based on these assumptions, PDEF will achieve an operating standard of five percent and an efficiency standard of 52.8 percent in compliance with Section 25134. (*Ibid.)* Staff proposed the adoption of Condition EFF-1 to ensure compliance with these standards. (4/28 RT 75.)

FINDINGS AND CONCLUSIONS

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

1. PDEF will not create a substantial demand for natural gas in California.
2. The project 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 (General Electric S207FA) nominally rated at 56.5 percent efficiency, which compares favorably to other available F-class turbine generators.

5. As a highly efficient natural gas-fired power plant, PDEF that will likely displace older, less efficient power plants in the utility system.

6. PDEF is a cogeneration project within the meaning of Section 25132 of the Warren-Alquist Act.

7. As a cogeneration project, PDEF is exempt from the Notice of Intention requirements as provided in Section 25540.6(a) of the Warren-Alquist Act.

8. With implementation of the Condition of Certification below, 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.

We therefore conclude that PDEF will not result in any significant adverse impacts to energy supplies or energy resources.

CONDITION OF CERTIFICATION

EFF-1 The facility shall be operated in accordance with the requirements of Public Resources Code Section 25134.

The project owner shall maintain monthly records of: 1) fuel consumption in the gas turbines and HRSG duct burners (including startup and shutdown); 2) net electrical energy produced; and 3) net thermal energy derived from cogeneration steam.

Based upon these records, the project owner shall annually prepare calculations of the operating standard and efficiency standard achieved by the plant, showing how the plant meets the minimum required standards.

Verification: The project owner shall maintain an on-site compliance file that contains the above records and the above calculations showing compliance with the required standards, and make it available for audit by the Compliance Project Manager (CPM) at any reasonable time. The project owner shall also submit the above calculations of the operating standard and efficiency standard to the CPM in each Annual Compliance Report following the first instance of power generation from the plant.

C. POWER PLANT RELIABILITY

The Warren-Alquist Act requires the Commission to examine the safety and reliability of a proposed power plant be examined, including provisions for emergency operations and shutdowns. [Pub. Resources Code, § 25520(b).] The Commission must determine whether a 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 reviews whether the proposed project would 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 would not 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. (4/28 RT 80.) According to Staff, project safety and reliability is achieved by ensuring equipment availability, plant maintainability, fuel and water availability, and adequate resistance to natural hazards. (*Ibid*.)

1. Equipment Availability

PDEF 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. 1, p. 3.9-3 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. 28, p. 401.)

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. 1, p. 3.9-1.) Staff agreed with Applicant that the project's two parallel trains of gas turbine generators/HRSGs, as well as the double circuit 115 kV transmission lines provide inherent reliability. (Ex . 28, p. 402.) Planned outages for each of the turbine generators will be scheduled in sequence during times of low regional electricity demand. (Ex. 1, p. 3.9-1.) PDEF's plant maintenance program will also ensure adequate equipment reliability. (*Ibid*.; Ex. 1 p. 3.9-2.)

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. 1, p. 3.9-2; Ex. 28, p. 403.) Applicant and Staff also concurred that Delta Diablo Sanitation District (DDSD) has adequate capacity to supply tertiary treated reclaimed water to the project. (4/28 RT 81; Ex. 1, p. 3.9-2.) Witnesses for both Applicant and Staff testified that the City of Pittsburg has

adequate capacity to provide potable water for project operations in an emergency. (See SOILS AND WATER RESOURCES section of this Decision.)

4. Natural Hazards

The project site may be susceptible to earthquakes and/or flooding. The project will conform with all applicable laws for seismic design.[1] (See FACILITY DESIGN section.) To avoid flooding, the site will be built at an elevation of 12 feet mean seal level (MSL). (See SOILS and WATER RESOURCES section.) Staff's witness therefore concluded that neither earthquakes nor flooding are likely to present significant hazards to the project's safety or reliability. (4/28 RT 81.)

5. Availability Factors

Applicant predicts the project will have an annual availability factor of 92-98 percent. (Ex. 1, p. 3.8-1.) Industry statistics for power plant availability are compiled by the North American Electric Reliability Council (NERC). (Ex. 28, p. 403.) NERC's statistics show an availability factor of 90.48 percent for combined cycle units of all sizes. (4/28 RT 85-86; Ex. 28, p.404.) Although the NERC figure is lower than Applicant's proposed availability factor, Staff's witness expects that a modern, baseload facility such as PDEF would likely exceed the NERC average. (4/28 RT 86.) Staff agreed with Applicant that the proposed 92-98 percent availability factor is consistent with industry norms for power plant reliability. (Ex. 28, p. 404.)

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. (See, TRANSMISSION SYSTEM ENGINEERING section.) Staff believes that existing industry norms for system reliability should be followed during this transitional deregulation period. (Ex. 28, p. 400.) Applicant will provide up to 60 MW of electricity to USS-POSCO and the remaining capacity will be sold on the spot market through Cal-ISO. (4/28 RT 88.) Applicant expects to operate the project as baseload facility although there is a likelihood that the project may operate on a startup/shutdown mode on occasion. (*Id.,* p. 89*.)* Since the project is designed to conform with industry norms, Staff concluded that PDEF will perform reliably in baseload and load following duty and cause no significant impacts to electric system reliability. (4/28 RT 81.)

No Conditions of Certification are required for this topic.

[1] 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. 28, p. 403.)

FINDINGS AND CONCLUSIONS

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

1. PDEF 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. PDEF's two parallel trains of gas turbine generators/HRSGs, as well as the double circuit 115 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. PDEF will perform reliably in baseload and load following duty and cause no significant impacts to electric system reliability.

We therefore conclude that the project will not have an adverse effect on system reliability.

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 PDEF'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 Operators (PTO) to determine appropriate mitigation for reliability and congestion impacts associated with new generation. Since the proposed project will interconnect with PG&E's transmission service area at the Pittsburg Power Plant, PG&E prepared a Preliminary Facilities Study to assess the potential reliability and congestion impacts associated with PDEF.[1] PG&E's final Detailed Facilities Study must be approved by Cal-ISO before an interconnection agreement can be completed.

SUMMARY OF EVIDENCE

1. Transmission Facilities

PDEF will generate a nominal electrical output of 500 MW.[2] The transmission system consists of a 115 kV switchyard and an overhead/underground double circuit 115 kV transmission line that will interconnect with PG&E's switchyard at the Pittsburg Power Plant about 2 miles west of the site. A second 1.2-mile single circuit 115 kV transmission line will connect at two existing USS-POSCO substations, east of the site. (Ex. 28, p. 417.)

The project switchyard configuration will consist of nine 115 kV SF6 circuit breakers, arranged in a breaker-and-a-half arrangement to provide greater reliability and to provide partial output to the grid in the event of circuit failure. (Ex. 28, p. 418.)

The one-mile overhead outlet line to the Pittsburg Power Plant will be strung on 75-foot steel tubular poles, placed 300-500 feet apart. (Ex. 29, p. 145.) This is a

[1] PG&E's Preliminary Facilities Study was provided to Applicant on December 4, 1998. (Ex. 6.) There have been several updates based on consultations with Cal-ISO, Applicant, and Staff. Cal-ISO concurred with PG&E's preliminary findings regarding reliability impacts but did not take a position on PG&E's proposals regarding congestion mitigation. (Ex. 24; Ex. 33.) The final Detailed Facilities Study is anticipated for release in July, 1999. (5/3 RT 23.)

[2] PDEF will provide up to 60 MW to USS-POSCO and up to 450 MW will be sold in the electricity market through Cal-ISO.

double circuit line, constructed with aluminum cable steel reinforced (ACSR) cable, with two conductors per phase that will provide at least 525 MW of transfer capability at 115 kV per circuit. (Ex. 28, p. 419.) Staff's witness testified that the overhead line would be constructed in accordance with CPUC General Order (GO) 95. (*Ibid.;* 5/3 RT 22.)

The one-mile underground portion of the outlet line will be constructed with solid dielectric cable. (Ex. 28, p. 419.) The cables will be installed in two separate trenches approximately 6.6 feet deep by 4 feet wide, with a separation of approximately 15 feet between the trenches. See, TRANSMISSION SYSTEM ENGINEERING Figure 1. Each circuit requires six cables, each of which is encased in its own conduit. The conduits will be encased in lean concrete, with six inches of reinforced concrete on top and three feet of dirt on top of the concrete. (*Ibid*.)

The underground trenches will be installed in an existing railroad right-of-way along the eastbound lane of the 8th Street corridor.[3] (Ex. 28, p. 419.) There will be two pulling manholes eight feet square by seven feet deep approximately 1,600 feet apart on the 8th Street corridor. (5/3 RT 42.) Staff and Applicant agree that that the underground line will be constructed in conformance with CPUC GO-128. (5/3 RT 22.)

The underground line travels west of the 8th Street and Montezuma Street intersection and then turns north along the eastern fence line of the DDSD pump station site. The line then turns west at the northeast edge of the pump station property line and continues in a westerly direction to the northwest edge of the pump station property line. The line then rises overhead and travels north to the Pittsburg Power Plant switchyard. (Ex. 29, p. 145, Ex. 39.) Applicant chose this routing to mitigate visual impacts and to accommodate DDSD's concerns about possible interference with pump station activities. (4/29 RT 78; 4/28 RT 94.) See TRANSMISSION SYSTEM ENGINEERING Figure 2.

In response to Committee questions, Applicant's witness, Joe Patch, testified that the underground line will transition overhead at the pump station, rather than remaining underground, because an overhead line is consistent with land use in the area and project economics were compelling. (4/29 RT 37-38.) The underground line will connect to the overhead line via two transition stations that are 30 feet high by 50 feet wide and 90 feet long. See TRANSMISSION SYSTEM ENGINEERING Figure 3

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[3] Mr. Buchanan, a witness representing Intervenor Delta Energy Project (DEC), testified that DEC's underground line, which also follows the 8th Street corridor, would be constructed in trenches separate and distinct from those of PDEF and located in a different right-of-way along the center median. (5/3 RT 35-36.) DEC's line will remain underground to the 230 kV bus at the Pittsburg Power Plant substation. (*Id.*, p. 35).

TRANSMISSION SYSTEM ENGINEERING FIGURE 1 - NOT AVAILABLE IN PDF VERSION

TRANSMISSION SYSTEM ENGINEERING FIGURE 2 - NOT AVAILABLE IN PDF VERSION

TRANSMISSION SYSTEM ENGINEERING FIGURE 3 - NOT AVAILABLE IN PDF VERSION

The 115 kV line to the USS-POSCO substations will be a single circuit ACSR cable with one conductor per phase that will provide at least 70 MW of transfer capability. (Ex. 28, p. 422.)

2. System Reliability

The conductor sizes for the transmission lines will be determined in the final project design phase. (See, FACILITY DESIGN section.) Staff proposed Condition TSE-1d to ensure the adequacy of conductor sizes for both the overhead and underground portions of the line.

PG&E's Preliminary Facilities Study includes a preliminary short circuit study to assess the project's potential impacts to the fault duties of the Pittsburg Power Plant switchyard and to assure that the breaker ratings are sufficient to withstand high levels of current during a fault. (Ex. 28, p. 424.) A final short circuit study will be provided in the Detailed Facilities Study. (*Id.,* p. 422.*)* Staff's proposed Condition TSE-1b would require Applicant to comply with PG&E's short circuit analysis in selecting breaker and bus size ratings.

The Preliminary Facilities Study indicates that Applicant must replace the four circuit breakers at the substations listed in TRANSMISSION SYSTEM ENGINEERING Table 1 to maintain adequate system reliability since their fault interrupting capability will be exceeded when PDEF interconnects to the Pittsburg Power Plant switchyard. (Ex. 29, p. 146.) Applicant's witness, Joe Patch, agreed with this assessment. (5/3 RT 41-42.)

TRANSMISSION SYSTEM ENGINEERING Table 1
Circuit Breakers to be Replaced

Substation	Circuit Breakers
Linde	1 – 115 kV (# 152)
Clayton	3 – 115 kV (#s 132, 312, and 332)

(Ex. 33, Cal-ISO Testimony, pp. 2 and 5.)

3. Role of Cal-ISO

The primary role of Cal-ISO is to ensure the reliable operation of the Cal-ISO controlled electrical grid. (Ex. 33, p.1.) To achieve this goal, Cal-ISO coordinates an operational review of all new generation projects to confirm that they will comply with Cal-ISO's Grid Planning Criteria. (*Ibid.*) These criteria incorporate all Western Systems Coordinating Council (WSCC) Reliability Criteria, the North American Electric Reliability Council (NERC) Planning Standards, and local area reliability criteria. (*Ibid.)*

Based on the Preliminary Facilities Study performed by PG&E in this case, Cal-ISO has determined that PDEF can reliably interconnect to the Cal-ISO

Controlled Grid if the specified circuit breakers at the facilities listed above in Table 1 are replaced. (Ex. 33, pp. 2, 5; 5/3 RT 31.)

PG&E also identified several downstream facilities that may be subject to congestion impacts as a result of PDEF's interconnection. Congestion created on the Cal-ISO Controlled Grid must be mitigated using Congestion Management Procedures specified in Cal-ISO Protocols. (Ex. 33, p. 6.) Cal-ISO recently adopted the Advanced Congestion Cost Mitigation (ACCM) methodology, which must be approved by the Federal Energy Regulatory Commission (FERC).

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. (5/3 RT 25-28; 30-31.) Pending FERC approval of the ACCM methodology, PG&E will complete the Detailed Facilities Study for Cal-ISO review. (Ex. 33, p. 7.) Condition TSE-1g requires Applicant to provide the approved Detailed Facilities Study and Interconnection Agreement to the Commission prior to construction of any transmission facilities.

4. Cumulative Impacts

PG&E's draft Detailed Facilities Study for the DEC project indicates the cumulative system response to multiple projects may reduce line overloads in the area. However, there was insufficient information in the record to identify which downstream facilities, if any, would be impacted by either PDEF or DEC. (5/3 RT 27-28.) In the event that downstream facility upgrades are chosen by Applicant, the environmental acceptability of such facilities would be determined in the CPUC's siting process or by local agencies, therefore ensuring compliance with CEQA. (*Ibid.)*

5. 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. The CPUC has promulgated rules under GO-95 and GO-128 that apply to project closure procedures. Staff's proposed Condition TSE-1c would require PDEF to comply with these CPUC rules. (Ex. 28, p. 430.) CONDITION GEN-9 in the FACILITY DESIGN section requires PDEF 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 PDEF'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 congestion impacts on the grid and, therefore, the Commission has adopted Cal-ISO's finding that PDEF can reliably connect to the grid by replacing the four circuit breakers identified by PG&E.

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 PDEF to submit the 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. Cal-ISO requested an additional Condition of Certification to require PDEF to comply with applicable Cal-ISO and PG&E interconnection protocols. (Ex. 33, p. 7; 5/3 RT 31.) This requirement is addressed in Conditions TSE-1b and 1e.

FINDINGS AND CONCLUSIONS

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

1. PDEF will interconnect with PG&E's transmission service area at the Pittsburg Power Plant 115 kV switchyard.
2. The project's double circuit overhead/underground outlet line to the Pittsburg Power Plant switchyard will provide 525 MW of transfer capability at 115 kV per circuit.
3. The project's single circuit 115 kV overhead line to USS-POSCO will provide at least 70 MW of transfer capability.
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 Preliminary Facilities Study to analyze the potential reliability and congestion impacts likely to occur when PDEF interconnects to the grid.
7. PG&E identified four circuit breakers at the Linde and Clayton substations that must be replaced by PDEF to maintain system reliability.
8. PDEF will replace the circuit breakers at the Linde and Clayton substations.

9. Cal-ISO has determined that PDEF can reliably interconnect to the Cal-ISO Controlled Grid if the circuit breakers are replaced.

10. Cal-ISO has insufficient information to determine potential downstream congestion impacts or cumulative impacts that would occur from PDEF's interconnection to the grid.

11. PG&E will submit a Detailed Facilities Study for Cal-ISO approval.

12. PDEF will provide the approved Detailed Facilities Study and the Interconnection Agreement to the Commission prior to construction of its transmission facilities.

13. Implementation of the measures specified in the Conditions of Certification listed below will ensure that PDEF'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 1f listed below. The substitution of CPM approved "equivalent" equipment and equivalent switchyard configurations is acceptable.

a. The project 115 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 95 and CPUC General Order 128.

d. An approximately two mile long double circuit 115 kV overhead and underground line will be constructed and interconnect into the existing Pittsburg Power Plant switchyard. The overhead portion will use steel pole construction with ACSR cable with two conductors per phase. The underground portion will use solid dielectric cable. The approximately 1.2 mile transmission line connecting into the two USS-POSCO substations will consist of a single circuit ACSR cable with one conductor per phase. The line will be constructed on 75-foot steel tubular poles. A study will be provided for all overhead and underground cables to justify conductor sizes.

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

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 Cal-ISO-approved Detailed Facilities Study and an executed facility Interconnection Agreement for the PDEF transmission interconnection with PG&E. The Detailed Facilities Study and Interconnection Agreement shall be coordinated with 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 switchyardconfigurations 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 and CPUC Rule No. 21 and these conditions shall be concurrently provided.

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. 28, p. 81.)

SUMMARY OF EVIDENCE

1. Description of Transmission Line

The 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. Electric and magnetic fields from the new line may contribute to cumulative exposures, visual impacts, and other field-related environmental effects. The line will traverse industrial areas, open spaces, and residential and commercial areas. Since the line will be connected with 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. 28, p. 85.) The right-of-way along the line will vary from 80-100 feet. (*Ibid.*)

Exhibit 39 shows Applicant's preferred route for the transmission line. (See, PROJECT DESCRIPTION). The line will consist of a double circuit 115 kV overhead/underground line, approximately 2 miles in length, connecting the project to PG&E's switchyard at the Pittsburg Power Plant. (Ex. 1, p. 4.2-3.) The overhead line will also include a 115 kV switchyard at the project site and a single circuit 115 kV line connecting PDEF to the USS-POSCO steel mill. (Ex. 28, p. 85.) The overhead line will be erected on 75-foot tall steel poles. (5/3 RT 49, 59.)

The underground portion of the line beneath the 8th Street corridor will be contained in a duct bank with a metal shield around each conductor. Because of the cancellation effects of these closely spaced conductors, the ground-level strength of magnetic fields from this portion would be less than those from the more widely spaced overhead portions of the line. (Ex. 28, p. 86.)

2. Potential Impacts

a. Electric and Magnetic Field Exposure

The possibility of health effects from exposure to electric and magnetic fields has increased public fears about living near high-voltage lines. (Ex. 28, p. 87.) The available evidence evaluated by the California Public Utilities Commission (CPUC) and other regulatory agencies has not established that such fields pose

a significant health risk. (*Ibid.*) Nevertheless, CPUC policy recommends that public concerns be considered during the siting process.[1] (Ex. 1, p. 4.2-6.)

The proposed transmission line must be designed according to the EMF-reducing design guidelines applicable to the transmission service area. This is necessary to avoid adverse impacts to transmission system operation. (5/3 RT 60; Ex. 28, p. 88.) Applicant measured the relevant field strengths at the right-of-way and found them typical for the field-reducing configuration in the PG&E transmission area. (5/3 RT 47-48; Ex. 28, p. 90.)

Applicant's witness Joe Patch 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.[2] (5/3 RT 48, 50.) Mr. Patch further testified that reducing the height of transmission line poles to 75 feet from the initial proposal of 150 feet, does not increase the amount of exposure at nearby residences. (*Id*., p. 49.) The sag point on the line is as high with the 75-foot poles as it was with the taller towers. (*Id*., p. 50.)

Regarding exposure along the 8th Street corridor where the underground line will be buried, Mr Patch testified that the electric force is minimal (since electric fields do not penetrate soil) and the magnetic force, while stronger, would be transitory. (*Id*., p. 52.) Staff witness Obed Odoemelam corroborated this testimony by explaining that users of the landscaped median along 8th Street would be exposed to higher magnetic field levels, but the exposure would be short-term, similar to use of a household appliance. (5/3 RT 56.)

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. 28, p. 88.) This is consistent with existing CPUC policy[3]. (*Ibid*.) Verification measurements will be conducted before and after construction. (Condition TLSN-3.)

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[1] The CPUC empaneled the California EMF Consensus Group in 1991, which issued a series of recommendations on facility siting.

[2] 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. 28, p. 88.) Applicant calculated the project's field strengths across the 80-foot to 100-foot right-of-way along the transmission line. An electric field strength of 0.7 kV/m was measured at 80-ft, and 0.5 kV/m was measured at 100-ft. The magnetic field strength was 100 mG at 80-ft. and 60 mG at 100-ft. For the underground portion of the line, the magnetic field strength was measured at 25 mG at the 80-ft. right-of-way and 15 mG at 100-ft. 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.

[3] 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.)

b. Aviation Safety

There are no major airports in the project vicinity.[4] (Ex. 1, p. 4.2-3.) Applicant will file a Notice of Construction or Alteration with the Federal Aviation Administration (FAA) to indicate its intent to construct the two 150-foot HRSG stacks.[5] (*Ibid.*) If advised by the FAA, Applicant will install lighting on the proposed stacks in accordance with FAA requirements. (*Ibid.*) Staff concurs with Applicant that the project and its related facilities will not pose hazards to aviation safety. (Ex. 28, p. 89.)

c. Interference With Radio-Frequency Communication

Interference with radio and television reception can be caused by spark gap discharges that produce noise and interference. Such interference can generally be avoided by appropriate line maintenance. (Ex. 1, p. 4.2-5.) Applicant will implement a maintenance program to minimize these occurrences. (*Ibid.*) Applicant also believes it is unlikely the transmission line would have any effect on radio/tv reception since the overhead line is not close to residences. (*Ibid.*; 5/3 RT 49.) In accordance with applicable law, Condition TLSN-2 requires PDEF to 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 buzz or hum. (Ex. 1, p. 4.2-4.) This condition is usually worse when the conductors are wet. (*Ibid.*) Conductor noise decreases by 2-3 decibels (dBA) for each doubling of the distance from the source. (*Ibid.*) Based on Applicant's transmission line design, the maximum electric field strength of 1.5 kV/m directly underneath the line would produce noise of less than 2 dBA at the edge of the right-of-way. (Ex. 28, p. 89; 5/3 RT 53.) Staff agrees with Applicant's assessment that noise from the transmission line would not add significantly to existing ambient noise levels. (Ex. 28, p. 89; Ex. 1, p. 4.2-5; 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

[4] The nearest airport, Buchanan Field Airport in Concord, is about 9.5 miles southwest of the project site. No flight paths for Buchanan Field Airport will directly cross over the site. (Ex. 1, p. 4.2-3.)

[5] The FAA does not require this Notice for objects less than 200 feet above ground level; however, Applicant will file a Notice to obtain FAA guidance on stack lighting. (Ex. 1, p. 4.2-3.)

adequate fire prevention and suppression measures are available. (Ex. 1, p. 4.2-7.) 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. (*Id*., p. 4.2-8.)

The risk of fire is higher during construction when personnel and equipment are present. To minimize fire risk, work rules will be implemented to enforce fire safety at construction sites. Fire suppression equipment, such as hand pumps, will be supplied to work crews during periods of high fire danger. (Ex. 1, p. 4.2-7.)

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. Applicant will employ grounding measures in compliance with the requirements of GO-95 to prevent hazardous shocks from overhead facilities. (Ex. 1, p. 4.2-6.) Applicant will also comply with GO-128 to ensure the safe operation of the underground line. (*Ibid*.)

COMMISSION DISCUSSION

The evidentiary record establishes that PDEF'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 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 and 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 115kV line that traverses industrial and open space areas on 75-foot steel poles and goes underground in residential/commercial areas.
2. The possibility of health effects from exposure to electric and magnetic fields 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. The 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 along the 8th Street corridor 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, however, short-term exposure would be higher due to the proximity of the underground line.

7. The estimated electric and magnetic field 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.

8. 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.

9. 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: 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 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 before beginning construction and at the same locations after the 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 first set of pre-project measurements with the CPM at least 30 days before the start of construction. The post-project measurements shall be filed within 30 days after the day the line is energized.

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 the Public Resources Code Section 4292 and Title 14, 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 at least 60 days 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: The project owner shall submit the proposed letter to the CPM for review and approval 30 days prior to mailing to the property owners and shall maintain a record of correspondence (notification and response) related to this requirement, in a compliance file. The project owner shall notify the CPM in the first Monthly Compliance 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.

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 PITTSBURG DISTRICT ENERGY FACILITY WILL CREATE COMBUSTION PRODUCTS AND COULD EXPOSE THE GENERAL PUBLIC AND WORKERS AT THE FACILITY TO THESE POLLUTANTS AS WELL AS THE TOXIC CHEMICALS ASSOCIATED WITH FACILITY OPERATIONS. THE POTENTIAL ISSUES ARE ADDRESSED IN THIS SECTION.

A. AIR QUALITY

The Commission must find that the project is likely to conform 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 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$) and their precursors: nitrogen oxides (NO_x), volatile organic compounds (VOC), and So_x. This analysis examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation.

The federal Clean Air Act requires new major stationary sources of air pollution to comply with the New Source Review (NSR) requirements in order to obtain permits to operate.[1] 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.

The project site is within the Bay Area Air Quality Management District's (BAAQMD) jurisdiction and is classified as a federal attainment area for O_3, NO_2, PM_{10}, Pb, and SO_2. (Ex. 1, § 5.2.2.3.) 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*).

California ambient air quality standards (CAAQS) promulgated by the California Air Resources Board (CARB) are, in general, more stringent than the national standards. (Ex. 28, p. 20.) Under state standards, the Bay Area is considered a nonattainment area for O_3 and PM_{10}. (Ex. 1, § 5.2.2.3.)

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.

BAAQMD'S FINAL DETERMINATION OF COMPLIANCE

On June 10, 1999, BAAQMD released its Final Determination of Compliance (FDOC), which was filed by Applicant on June 11, 1999. (Ex. 49.) The FDOC concludes that PDEF will comply with all applicable air quality requirements and imposes certain conditions necessary to ensure compliance. The Commission has incorporated BAAQMD's conditions in this Decision. (Cal. Code of Regs., tit. 20, § 1752.3.)

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

SUMMARY OF EVIDENCE

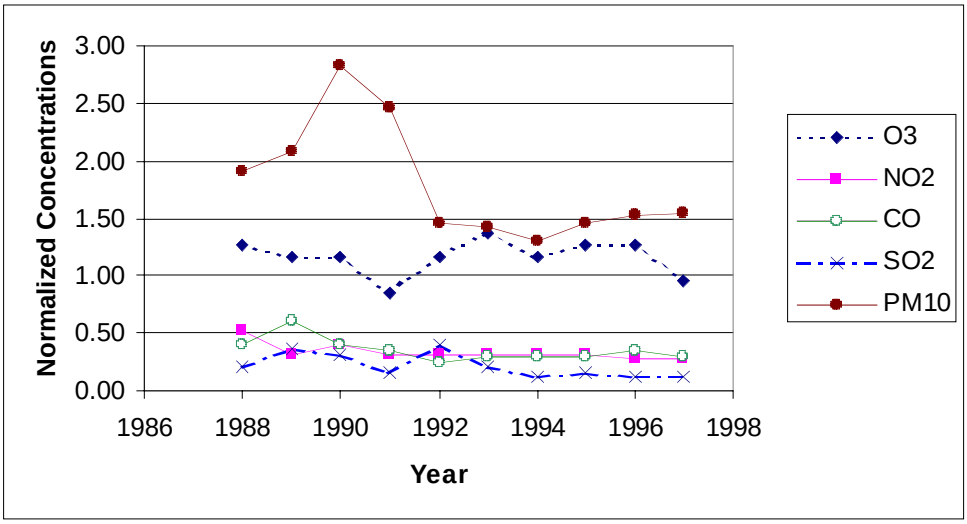
1. Meteorology

PDEF is located in a climatological subregion of the Bay Area known as the Carquinez Strait Region. This region includes the cities of Martinez, Pittsburg, Antioch, Fairfield, and Suisun City. (Ex. 28, p. 21.) The Carquinez Strait is characterized by prevailing winds from the west, particularly in the summer. (*Ibid.*) Measurements of wind velocity and wind direction were based on data collected at the meteorological measuring station located at the existing Pittsburg Power Plant, less than one mile from the proposed PDEF site. (*Ibid.*)

2. Ambient Air Quality

There is one air quality monitoring station in Pittsburg, located on 10th Street, which measures ozone, CO, NO_2, and SO_2. The closest monitoring stations measuring PM_{10} are located at Concord and Bethel Island, both in Contra Costa County. (Ex. 47, p. 1.) Historically, the highest measured PM_{10} concentrations in the county occur at Bethel Island. (*Ibid.*) 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.

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: ARB, 1998a as reported in the Delta Energy Center (DEC) 1998 AFC.

The following discussion reviews the air pollution trends shown in Figure 1. AIR QUALITY Table 1 on the next page lists the national (NAAQS) and California (CAAQS) standards. AIR QUALITY Table 2 shows air pollutant data summaries from the Pittsburg, Bethel Island, and Concord monitoring stations.

a. Ozone

The Pittsburg area has experienced, in general, an average of four or five days with violations of the 1-hour state standard for ozone in a year and it may be in violation of the new 8-hour national standard for ozone. (Ex. 28, p. 22.) The long-term trend shows that Contra Costa County has made significant progress toward attainment of the 1-hour standard. (*Ibid*.) Staff expects, however, that reductions of ozone precursor emissions (NO_x and VOC) will be required into the foreseeable future. (*Id*., p. 23.)

b. 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. 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. (Ex. 28, p. 24.) Nevertheless, all the 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*.)

c. 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. 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. (Ex. 28, p. 25.)

d. *Particulate Matter*

Intervenor CAP-IT raised concerns that Applicant and Staff relied on PM_{10} monitoring stations in Concord and Bethel Island, which are at some distance away from Pittsburg. CAP-IT believes that locating a PM_{10} monitoring station in the Pittsburg-Antioch area would provide a more accurate assessment of existing PM_{10} concentrations in the area before and after PDEF commences operation.

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			

Source: Ex. 1, Table 5.2-2

AIR QUALITY Table 2
Air Pollutant Data Summaries

Pittsburg - 10th Street					
	1993	**1994**	**1995**	**1996**	**1997**
Pollutant/Parameter					
Ozone ($\mu g/m^3$)					
Highest 1 – hour	254.7	215.5	235.1	235.0	176.3
Days>State Standard	4.0	3.0	8.0	5.0	0.0
Days>Federal Standard	1.0	0.0	0.0	--	--
Carbon Monoxide ($\mu g/m^3$)					
Highest 1 – hour	6857.1	6857.1	6857.1	6857.1	6857.1
Highest 8 – hour	3200.0	4000.0	3200.0	3111.1	3666.7
Nitrogen Dioxide ($\mu g/m^3$)					
Highest 1 – hour	150.2	150.2	187.8	183.4	183.4
Annual	32.1	32.1	32.1	30.2	26.4
Sulfur Dioxide ($\mu g/m^3$)					
Highest 1 – hour	130.6	78.4	104.5	78.6	78.6
Highest 24 – hour	23.5	26.1	31.3	31.3	23.5
Annual	2.6	2.6	2.6	5.3	2.7

Bethel Island			
	1995	**1996**	**1997**
Pollutant/Parameter			
Ozone ($\mu g/m^3$)			
Highest 1 – hour	254.6	274.2	195.8
Days>State Standard	6.0	6.0	1.0
Days>Federal Standard	1.0	1.0	--
Carbon Monoxide ($\mu g/m^3$)			
Highest 1 – hour	3428.6	2285.7	3428.6
Highest 8 – hour	3333.3	1800.0	3333.3
Nitrogen Dioxide ($\mu g/m^3$)			
Highest 1 – hour	112.8	112.8	94.0
Annual	20.8	20.8	20.8
Sulfur Dioxide ($\mu g/m^3$)			
Highest 1 – hour	52.4	26.2	52.4
Highest 24 – hour	18.3	18.0	20.9
Annual	0.0	2.7	2.7
Particulate Matter>10mm ($\mu g/m^3$)			
Highest 24-hour	73.0	76.0	77.0
Days>State Standard	3.0	1.0	2.0
Days>Federal Standard	0.0	0.0	0.0
Annual	19.4	18.8	19.9

AIR QUALITY Table 2 (cont.)
Air Pollutant Data Summaries

Concord – Treat Boulevard					
	1993	**1994**	**1995**	**1996**	**1997**
Pollutant/Parameter					
Ozone ($\mu g/m^3$)					
Highest 1 – hour	254.7	235.1	293.9	254.6	195.8
Days>State Standard	7.0	4.0	9.0	11.0	2.0
Days>Federal Standard	2.0	0.0	3.0	1.0	--
Carbon Monoxide ($\mu g/m^3$)					
Highest 1 – hour	8000.0	9142.9	6857.1	6857.1	6857.1
Highest 8 – hour	5714.3	4914.3	3200.0	3222.2	3444.4
Nitrogen Dioxide ($\mu g/m^3$)					
Highest 1 – hour	187.3	150.2	169.0	150.4	150.4
Annual	37.6	39.4	37.6	34.0	32.1
Sulfur Dioxide ($\mu g/m^3$)					
Highest 1 – hour	104.5	104.5	78.4	52.4	104.8
Highest 24 – hour	34.0	20.9	15.7	13.0	18.3
Annual	2.6	2.6	10.4	0.0	0.0
Particulate Matter>10mm ($\mu g/m^3$)					
Highest 24-hour	81.0	87.0	56.0	72.0	76.0
Days>State Standard	2.0	4.0	1.0	1.0	2.0
Days>Federal Standard	0	0	0	0	0
Annual	19.3	20.2	20.2	16.1	17.5

Source: California Air Quality Data from California Air Resources Board; Ex. 1, Table 5.2-3 revised.

(5/26 RT 70-81; 6/15 RT 48-50.) Staff asserted that the Bethel Island station records the highest PM_{10} concentrations in Contra Costa County and using those measurements represents the worst case analysis. According to Staff, a station placed in Pittsburg-Antioch would likely report lower PM concentrations. Further, Staff noted that Concord is an urban area similar to Pittsburg so that measurements at Concord would be representative of those anticipated in Pittsburg-Antioch. (Ex. 47; 5/26 RT 64-66.)

3. Best Available Control Technology (BACT)

BAAQMD requires the project to use "best available control technology" (BACT) to control emissions of the applicable pollutants and their precursors. (Ex. 1, § 5.2.3.2.)

Applicant will use the General Electric (GE) Model S207FA, a combined cycle combustion turbine generator (CTG) system. The project will consist of two natural gas-fired CTGs, each with a heat recovery steam generator (HRSG), and a common steam turbine electrical generator. Duct burners will also be installed in each HRSG. PDEF's exclusive use of natural gas, an inherently clean fuel, will limit the formation of VOC, PM_{10}, and SO_x. (Ex. 28, p. 28.) The CTGs will be equipped with Dry Low-NOx combustors to minimize NO_x formation. The HRSGs will be equipped with Selective Catalytic Reduction (SCR) systems to further reduce NO_x emissions, and oxidizing catalysts to control CO emissions as well as some VOC emissions. An auxiliary boiler to supply steam to USS-POSCO will comply with BACT by limiting operation to 1,500 hours a year. (*Id*., pp. 28-29.)

The FDOC includes several conditions that describe BACT for specific pollutants. Those conditions are incorporated into the Commission's Conditions of Certification as follows: AQ-14, AQ-18, AQ-19, AQ-20, AQ-21, AQ-22, AQ-25, AQ-28, AQ-29, and AQ-32(e). Condition AQ-21 specifically reflects the comments of the EPA and CARB, which limit NO_x emissions to 2.5 ppm averaged for one hour. Condition AQ-22 allows for excursions caused by transient conditions where NO_x emissions, limited to 2.5 ppm, may be averaged over 3 hours. (6/15 RT 28-29.)

4. Emission Reduction Credits/Offsets

BAAQMD also requires the project to provide offsets on an annual basis (tons per year or tpy) for NO_x, VOC, and PM_{10} as shown in AIR QUALITY Table 3 (Staff's Air Quality Table 10 in Exhibit 46). Under BAAQMD rules, offset requirements are based on the project's expected maximum permitted emission levels. (Ex. 1, § 5.2.6.2.) Applicant used EPA-approved modeling to calculate

the worst-case pollutant levels.[2] (*Id.*, § 5.2.5.1.) Applicant will use interpollutant offsets at a ratio of 4:1 for SO_x to offset PM_{10}.

AIR QUALITY Table 3
Maximum Annual NO_x, VOC, and PM_{10} Emissions and Offsets

Pollutant	Emissions (tpy)	Offset Ratio	Offsets (tpy)
NO_x	153.2	1.15:1	176.18
VOC	97.61	1.15:1	112.25
PM10	123.55	1:1	123.55

Annual emissions from Condition AQ-33 and offsets from Condition AQ-50
Source: Ex. 46, Table 10.

BAAQMD determined that PDEF would have enough offsets to satisfy the requirements and approved the offset package in the FDOC. In response to public comment, Staff added a condition to require PDEF to use the local emission reduction credits (ERCs) generated in Antioch before non-local offsets may be used. (Ex. 50, p. 2.) Condition AQ-53 incorporates this requirement. AIR QUALITY Table 4 (Staff's Air Quality Table 11 in Exhibit 46) presents PDEF's offset package.

AIR QUALITY TABLE 4
Source of Offsets

SOURCE	No_x (tpy))	VOC (tpy)	PM_{10} (tpy)
Owens-Brockway Certificate #518	73.62		42.8
Owens-Brockway Cerificate #518			11.57[1]
Owens-Broackway Unbanked Credits	215.73		55.33
Owens-Broackway Unbanked Credits		10.78	14.3[2]
Quebecor Printing San Jose, Inc. Unbanked Credits		144	

1 Interpollutant offsets of 46.3 tpy of SOx (ratio of 4:1, which means that 4 tpy of SOx offset 1 tpy of directly emitted PM10)
2 Credits are for 138 tpy. Of this 57.2 tpy would be traded for PM10 (ratio of 4:1)

Source: Exhibit 46, Table 11; March 10, 1999 letter to Mr. Dennis Jang (BAAQMD) from Samuel Wehn (PDEF).

[2] Applicant revised its air modeling analysis in its December 1998 AFC Supplement to reflect modifications to the project that included reducing the stack height to 150 feet and rotating the project footprint 180 degrees in response to public comment. (Ex. 7, § 5.2.)

5. Construction Phase

Project construction will result in short-term emissions from construction vehicle exhaust, power tool and generator exhausts, fugitive dust from excavation, cut-and-fill operations and roadside haulage, and other activities. (Ex. 1, § 5.2.5.8.) Applicant used EPA-approved modeling to estimate the impacts associated with fugitive dust and tailpipe emissions and found that the modeled short-term construction emissions would exceed PSD significance levels for CO, PM_{10}, and NO_x. (*Id., §* 5.2.5.) Applicant noted, however, that these modeled impacts are the result of temporary emissions that will not occur simultaneously with the emissions associated with project operation. (*Id*., p. 5.2.5.8.4.)

Staff agreed that temporary construction emissions are not typically regulated by air quality standards; however, Staff was concerned that some arsenic-contaminated soils found onsite could constitute a health risk from fugitive dust releases. (Ex. 28, p. 38; See, PUBLIC HEALTH section.) Staff proposed Conditions AQ 54-57 to minimize fugitive dust, control arsenic-contaminated soils, and reduce fugitive particulate emissions from vehicular traffic to acceptable levels. (Ex. 50, p. 24 et seq.) The Commission has adopted these Conditions.[3]

6. Commissioning

Commissioning is the technical term that describes the operation of the power plant after it has been physically installed but not yet in commercial operation. (Ex. 28, p. 29.) Commissioning begins with the first firing of fuel in the CTG/HRSGs to test and adjust equipment and emission control systems. (Ex. 50, p. 2.) Conditions AQ 1-13 apply to the commissioning period; specifically Conditions AQ 11-12 set limits on the amounts of pollutant emissions allowed on a daily basis during the commissioning period.

7, Operation

Applicant chose the GE turbine based on its state-of-the-art emissions control data, which are lower than the manufacturer's specifications for the competitive Westinghouse turbine. (Ex. 1, § 5.2.4.3.) Applicant used Westinghouse data, however, to achieve the most conservative or worst case emission estimates. (*Ibid*.) Upon Staff's recommendation, however, Applicant agreed to reduce its emission levels beyond those initially calculated because Staff's experience with other California power plants has shown that actual daily emission levels are significantly lower than permitted levels. (Ex. 46, p. 6-7.)

Condition AQ-22(d) requires PDEF to maintain continuous emissions monitors (CEM) in the stacks to ensure compliance with the approved emissions levels.

[3] These conditions on construction emissions were not included in the FDOC.

The CEMs will be calibrated to automatically control emissions to maintain approved levels. These levels are shown in AIR QUALITY Tables 5, 6, and 7.

AIR QUALITY Table 5
Maximum Permitted Hourly Emissions Levels
(lb/hr)

	NO_x	CO	VOC
Gas Turbine (GT) 1	17.5	26.56	3.43
Gas Turbine 2	17.5	26.56	3.43
Boiler	2.9	9.8	0.36
GT (start-up)	223	1821	239
GT (shutdown)	58	238	253

Source: Conditions of Certification AQ-21, AQ-23, AQ-28.

AIR QUALITY Table 6
Facility-Wide Maximum Permitted Daily and Annual Levels

		Total Facility
NO_x	lb/day	1190[1]
	Tons/yr	153.2
CO	lb/day	5224
	Tons/yr	487.3
VOC	lb/day	892
	Tons/yr	97.61
PM	lb/day	842
	Tons/yr	123.55
SO_x	lb/day	272.4
	Tons/yr	39.86

[1] 1330 lb/day for up to 10 days per consecutive twelve month period.

Source: Conditions of Certification AQ-32, AQ-33

AIR QUALITY Table 7
Maximum Permitted Hourly, Daily, and Annual Fuel Consumption

	Hourly	Daily	Annual
	(MMBtu/hr)	(MMBtu/day)	(MMBtu/yr)
GT1	2012	48,288	32,500,000
GT2	2012	48,288	
Boiler	266	6384	399,000
Total Facility		102,960	32,900,000

Source: Conditions of Certification AQ-15, AQ-16, AQ-17, AQ-26, AQ-27, AQ-30, AQ-31.

8. Truck Bypass Road

The 1992 Final Environmental Impact Report (FEIR) on the Waterfront Truck Route addresses concerns regarding CO and PM_{10} impacts. (Ex. 46, p. 7.) The FEIR did not find violations of the CO ambient air quality standards, and future concentrations were expected to be below historical levels due to declining CO emission rates. With respect to PM_{10}, the FEIR indicates that, in general, the homes west of Columbia Street would not be downwind of the new road under prevailing westerly wind conditions, but PM_{10} and road dust could affect those homes when the wind blows in a different direction. (*Ibid*.) Staff expects the sound wall to protect residences from some of the fugitive dust and tail pipe emissions except when the wind blows east to west. (*Id*., p. 8.) Staff proposed that the City of Pittsburg employ new PM_{10} efficient street sweeping equipment to minimize PM_{10} impacts. (*Ibid*.)

9. Cumulative Impacts

In response to concerns raised by the City of Antioch, Staff conducted a modeling analysis[4] to determine the potential combined effects of PDEF, Delta Energy Center (DEC), and the existing Contra Costa and Pittsburg Power Plants previously owned by PG&E.[5] (Ex. 46, p. 1.) Staff modeled only the incremental emissions from the existing facilities that have not already been accounted for in the ambient pollutant concentrations and found that adding both PDEF and DEC emissions would result in total impacts far below the most stringent applicable air quality standards. (*Id.,* p. 2.)

There has been a decline in PM_{10} concentrations in Contra Costa County due to continued reduction of NO_x, SO_x, and VOC emissions, which are PM_{10} precursors, under BAAQMD's 1997 Clean Air Plan. Moreover, BAAQMD's regulations limit the amount of NO_x, PM_{10} and CO that can be emitted from all the previously owned PG&E power plants within BAAQMD's boundaries. To comply with this rule, the PG&E system-wide NO_x emission rate in pounds per million Btu must be reduced to a rate that is one-tenth of the 1997 system-wide emission rate by the year 2005. (*Ibid*.)

Finally, Staff found that the separate plumes from the projects would not interact in any substantial way. (*Id.,* p. 4.) Staff concluded that the operation of PDEF added to the existing and planned projects in the same area would not result in cumulative significant PM_{10} impacts. (5/26 RT 69.)

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[4] Staff used the CALMET/CALPUFF modeling system, a state-of-the-art program currently proposed by the EPA. (Ex. 46, p. 2.)

[5] These two power plants were recently purchased by Southern Energy. (Ex. 46, p. 1.)

10. Public Comment

Mr. Jim MacDonald, a resident of the City of Pittsburg and a member of the Pittsburg Unified District School Board presented public comment at two evidentiary hearings. (4/29 RT 223 et seq. and 6/15 RT 52 et seq.) Mr. MacDonald opposes the project because he believes that heavy industry in the City of Pittsburg causes significant adverse impacts to the health of young children and other residents in the downtown residential areas. Mr. MacDonald also believes that Staff should have conducted an environmental justice analysis since his statistics show a high proportion of minority residents in the downtown area. He took exception with Staff's use of a 1.5-mile radius to determine eligibility for an environmental justice analysis.

Mr. M. S. Lengyel presented public comment at the May 26th hearing and submitted three separate letters with attachments, specifically opposing the Truck Bypass Road. Mr. Lengyel is concerned that diesel fuel exhaust from heavy truck traffic on the road will cause significant adverse health effects to the residents of Central Addition. He believes that the bypass road should not be part of the power plant project and requests the Commission to delete it from the certification proceeding.

COMMISSION DISCUSSION

CAP-IT's request to locate a particulate monitoring station in the Pittsburg-Antioch area has merit. Indeed, the August 5, 1998 letter from BAAQMD to Supervisor DeSaulnier, supports the placement of an air monitor in Pittsburg. BAAQMD's witness, Dennis Jang, testified that there had been such a monitor in the area but it was removed due to flooding. (5/26 RT 99.) While Staff presented credible evidence that the PM_{10} measurements at Concord and Bethel Island were accurate representations of conditions in Pittsburg, it makes sense to conclude that the actual measurements in Pittsburg would be the most accurate. Therefore, the Commission shall require PDEF to purchase, install, and operate, in cooperation with DEC, a particulate monitoring station in the Pittsburg-Antioch area. Both PDEF and DEC are directed to measure ambient air emissions for one year prior to commercial operation and for two years following the start of commercial operation for their respective facilities. The Commission has added Condition of Certification AQ-58 to ensure that PDEF and DEC will cooperate to provide the monitoring station and in consultation with BAAQMD, to determine the appropriate location for the monitor.

The Commission finds the evidence persuasive that project emissions in this case would not result in significant adverse impacts. PDEF will employ state-of-the-art technology to reduce emission levels below state and federal standards. Implementation of the conditions contained in the FDOC and incorporated in this Decision will ensure that PDEF conforms with all applicable law. The use of

CEMs provides continuous information regarding emissions and will automatically control emissions to the limits established by the FDOC.

Condition AQ-21 requires the most stringent limit on NO_x control (2.5 ppm averaged for one hour) that is deemed technologically feasible by the EPA, CARB, and BAAQMD for this project. PDEF's ability to conform with this requirement will be monitored and reviewed by both BAAQMD and the Commission. We believe that there are sufficient safeguards in the compliance process to ensure that project emissions remain at the lowest feasible levels over the life of the project.

The evidence is uncontroverted that any potential cumulative effects of PDEF in combination with the prospective DEC facility and the two existing power plants in the area would not result in significant adverse impacts to ambient air quality. Although the City of Antioch raised a concern about cumulative effects, the city did not present any evidence to rebut Staff's analysis and conclusions.

The Commission finds Mr. Lengyal's proposal to sever the Truck Bypass Road from this proceeding is reasonable. Indeed, the Commission believes the nexus between the road and the power plant project is attenuated and, therefore, the Truck Bypass Road is not included in the certification of the PDEF project. The sound wall associated with the road, however, will serve to mitigate project-related visual impacts and noise. Mr. Lengyal's opposition to the road is based on his concern about diesel fuel exhaust. Staff's analyses show that prevailing winds tend to flow west to east and would, therefore, move exhaust along the Truck Bypass Road to the east of the Central Addition. The TRAFFIC AND TRANSPORTATION section of this Decision contains additional discussion on the Truck Bypass Road.

Mr. MacDonald's concerns about air quality impacts appear to be based on various events that have previously occurred in the City of Pittsburg and are unrelated to the PDEF project. The industrialized nature of the downtown area near residences is not an aesthetically desirable venue; however, the scientific analyses contained in the record of this case indicate that air quality in Pittsburg will not be degraded as a result of the PDEF project. The SOCIOECONOMICS section of this Decision addresses Mr. MacDonald's view that an environmental justice analysis should have been conducted.

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 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$) and their precursors: nitrogen oxides (NO_x), volatile organic compounds (VOC), and SO_x.

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

3. The Bay Area is a federal attainment area for O_3, NO_2, PM_{10}, Pb, and SO_2.

4. The Bay Area is a nonattainment area under California standards for O_3 and PM_{10}.

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

6. There is an air quality monitoring station in Pittsburg that measures ozone, CO, NO_2, and SO_2.

7. The nearest particulate (PM_{10}) monitoring stations are in Concord and Bethel Island.

8. Since the Bethel Island monitoring station records the highest PM_{10} concentrations in Contra Costa County, it is presumed that actual PM_{10} concentrations in the City of Pittsburg would be measured at lower levels.

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

10. BAAQMD released its Final Determination of Compliance (FDOC) for the PDEF project on June 10, 1999. The conditions contained in the FDOC are incorporated into the Conditions of Certification below.

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

12. PDEF has submitted its offset package, which provides more than enough emission reduction credits (ERCs) to satisfy BAAQMD's requirements.

13. Condition AQ-53 requires PDEF to use the local ERC's before non-local ERCs may be used.

14. Condition AQ-21 limits project NO_x emissions to 2.5 parts per million (ppm) averaged for one hour.

15. Condition AQ-22 allows for excursions caused by transient conditions where NO_x emissions, limited to 2.5 ppm, may be averaged over 3 hours.

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

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

18. With implementation of the Conditions of Certification below, PDEF 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

Pittsburg District Energy Facility Conditions of Certification

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 120 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 21(b) and 21(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 21(a) through 21(f) 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 28(b) and 28(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 28(a) through 28(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 (Gas Turbine S-1 and HRSG S-2) and emission point P-2 (Gas Turbine S-3 and HRSG S-4) the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis. For emission point P-3 (Auxiliary Boiler S-5), 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 PDEF 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

Conditions for the Commissioning Period

AQ-1. The owner/operator of the Pittsburg District Energy Facility (PDEF) shall minimize emissions of carbon monoxide and nitrogen oxides from S-1 & S-3 Gas Turbines, S-2 & S-4 Heat Recovery Steam Generators (HRSG), and S-5 Auxiliary Boiler to the maximum extent possible during the commissioning period. Conditions 1 through 13 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 14 through 51 shall apply after the commissioning period has ended.

Verification: The owner/operator shall submit a monthly compliance report to the California Energy Commission (CEC) Compliance Project 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 Gas Turbines, S-2 & S-4 Heat Recovery Steam Generators, and S-5 Auxiliary Boiler 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, A-1 & A-3 SCR Systems and A-2 & A-4 Oxidation Catalysts shall be installed, adjusted, and operated to minimize the emissions of carbon monoxide and nitrogen oxides from S-1 & S-3 Gas Turbines and S-2 & S-4 Heat Recovery Steam Generators.

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

AQ-4. Coincident with the steady-state operation of A-1 & A-3 SCR Systems and A-2 & A-4 Oxidation Catalysts pursuant to conditions 3, 8, and 9, the Gas Turbines (S-1 & S-3) and the HRSGs (S-2 & S-4) shall comply with the NOx and CO emission limitations specified in conditions 21(a) through 21(d).

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

AQ-5. The owner/operator of the PDEF 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 and S-3 Gas Turbines describing the procedures to be followed during the commissioning of the turbines, HRSGs, auxiliary boiler, 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 S-1 and S-3 Gas Turbines and S-2 and S-4 HRSGs without abatement by the SCR Systems 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-6. During the commissioning period, the owner/operator of the PDEF shall demonstrate compliance with conditions 11 and 12 through the use of properly operated and maintained continuous emission monitors and 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 S-1 and S-3 Gas Turbines, S-2 and S-4 HRSGs, and S-5 Auxiliary Boiler. The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen oxide 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 or CEC CPM upon request.

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

AQ-7. The District-approved continuous monitors specified in condition 6 shall be installed, calibrated, and operational prior to first firing of S-1 & S-3 Gas Turbines, S-2 & S-4 Heat Recovery Steam Generators, and S-5 Auxiliary

Boiler. After first firing of the turbines and auxiliary boiler, 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: The owner/operator shall indicate in the monthly compliance report how this condition is being implemented.

AQ-8. The total number of firing hours of S-1 Gas Turbine and S-2 Heat Recovery Steam Generator without abatement of nitrogen oxide and carbon monoxide emissions by A-1 SCR System and A-2 Oxidation Catalyst shall not exceed 250 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 SCR and oxidation catalysts 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 250 firing hours without abatement shall expire.

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

AQ-9. The total number of firing hours of S-3 Gas Turbine and S-4 Heat Recovery Steam Generator without abatement of nitrogen oxide and carbon monoxide emissions by A-3 SCR System and A-4 Oxidation Catalyst shall not exceed 250 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 SCR and oxidation catalysts 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 250 firing hours without abatement shall expire.

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

AQ-10. The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM10, and sulfur dioxide that are emitted by S-1, S-2, S-3, S-4, and S-5 during the commissioning period shall accrue towards the consecutive twelve month emission limits specified in condition 33.

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

AQ-11. Combined pollutant emissions from S-1 & S-3 Gas Turbines and S-2 & S-4 Heat Recovery Steam Generators shall not exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of S-1 & S-3 Gas Turbines.

• NO_x (as NO_2)	1,360 pounds per calendar day	616 pounds/hour
• CO	6,800 pounds per calendar day	5,053.8 pounds/hour
• POC (as CH_4)	720 pounds per calendar day	
• PM_{10}	816 pounds per calendar day	
• SO_2	268 pounds per calendar day	

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

AQ-12. Pollutant emissions from S-5 Auxiliary Boiler shall not exceed the following limits during the commissioning period. These emission limits shall include emissions that occur during S-5 Auxiliary Boiler start-ups.

• NO_x (as NO_2)	69.8 pounds per calendar day	2.91 pounds per hour
• CO	233.8 pounds per calendar day	9.74 pounds per hour
• POC (as CH_4)	8.64 pounds per calendar day	
• PM_{10}	31 pounds per calendar day	
• SO_2	3.6 pounds per calendar day	

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

AQ-13. 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 23. 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 calendar days before the execution of the source tests, the Owner/Operator shall submit to the District and the CEC 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) and the Heat Recovery Steam Generators (HRSGs) (S-2 & S-4).

AQ-14. The Gas Turbines (S-1 and S-3) and HRSGs (S-2 and S-4) shall be fired exclusively on natural gas with a maximum sulfur content of 1 grain per 100 standard cubic feet. (BACT for SO_2 and PM_{10})

Verification: The owner/operator shall submit to the CEC CPM an Air Quality Report every January and July. The Air Quality Report shall include two components: an exceptions report, and a complete data report. The exceptions report shall be written, and shall identify all instances where any of the Conditions of Certification have not been met. The complete data report shall be submitted in electronic form, and shall contain all of the data required to demonstrate compliance with the daily and annual limitations on heat inputs and air pollutant emissions. The owner/operator may submit monthly reports in substitution of the semiannual reports with prior approval from the CEC CPM. These monthly reports could be coordinated with the reports required in Condition 43. To demonstrate compliance with respect to the maximum sulfur content of the fuel, 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 PDEF complies with the above limitation. These records shall be made available to the District or the CEC CPM upon request during on-site compliance inspections.

AQ-15. 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 2,012 MM BTU per hour, averaged over any rolling 3-hour period. (PSD for NO_x)

Verification: As part of the Air Quality Reports, the owner/operator shall include information on the date and time when the hourly fuel consumption exceeds this hourly limit. The owner/operator must also report any violations of permit conditions in a timely manner, as required in condition 45.

AQ-16. 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 48,288 MM BTU per calendar day. (PSD for PM_{10})

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

AQ-17. The combined cumulative heat input rate for both Gas Turbines (S-1 and S-3) and both HRSGs (S-2 and S-4) shall not exceed 32,500,000 MM BTU per year. (Offsets)

Verification: As part of the Air Quality Reports, the owner/operator shall report any violation of this condition.

AQ-18. The HRSG duct burners shall not be fired unless its associated Gas Turbine is in operation. (BACT for NO_x, CO, POC)

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-19. The Gas Turbine (S-1) and HRSG (S-2) shall be abated by the properly operated and properly maintained Oxidizing Catalyst (A-1) and Selective Catalytic Reduction System (A-2), in series. (BACT for NO_x and CO)

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-20. The Gas Turbine (S-3) and HRSG (S-4) shall be abated by the properly operated and properly maintained Oxidizing Catalyst (A-3) and Selective Catalytic Reduction System (A-4), in series. (BACT for NO_x and CO)

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-21. The owner/operator of the Gas Turbines (S-1 and S-3) and HRSGs (S-2 and S-4) shall meet all of the requirements listed in (a) through (f) below, except during a Gas Turbine Start-up or a Gas Turbine Shutdown. (BACT, PSD, and Toxic Risk Management Policy)

(a) Nitrogen oxide emissions at P-1 (the combined exhaust point for the S-1 Gas Turbine and the S-2 HRSG after control by the A-1 SCR System and A-2 Oxidation Catalyst) shall not exceed 17.5 pounds per hour, calculated as NO_2, nor 0.009 lbs/MM BTU of natural gas fired. Nitrogen oxide emissions at P-2 (the combined exhaust point for the S-3 Gas Turbine and the S-4 HRSG after control by the A-3 SCR System and A-4 Oxidation Catalyst) shall not exceed 17.5 pounds per hour, calculated as NO_2, nor 0.009 lbs/MM BTU of natural gas fired. (PSD for NO_x)

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

(c) Carbon monoxide emissions at P-1 and P-2 each shall not exceed 26.56 pounds per hour, nor 0.0132 lb/MM BTU of natural gas fired. (PSD for CO)

(d) The carbon monoxide concentration at P-1 and P-2 each shall not exceed 6 ppmv, corrected to 15% O_2, on a dry basis, averaged over any rolling 3-hour period. (BACT for CO)

(e) Ammonia (NH_3) emissions at P-1 and P-2 each shall not exceed 10 ppmv, corrected to 15% O_2, on a dry basis, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous records of the ammonia injection rate to A-1 and A-2 SCR Systems. The correlation between the gas turbine and HRSG heat input rates, A-1 and A-2 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1 and P-2 shall be determined in accordance with permit condition 38. (TRMP for NH_3)

(f) Precursor organic compound (POC) emissions at P-1 and P-2 each shall not exceed 3.43 pounds per hour, nor 0.0017 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-22. The following conditions shall apply to NO_x emissions resulting from or attributable to transient, non-steady state operating conditions. (BACT for NO_x)

(a) CEM NO_x emission concentration data points that result from or are attributable to transient, non-steady state conditions shall not be subject to the emission limitations specified in Condition 21(b). In any event, the nitrogen oxide concentration at P-1 and P-2 each shall not exceed 2.5 ppmv, corrected to 15% O_2, on a dry basis, averaged over any rolling 3-hour period. All CEM NO_x emission concentration data points shall be utilized when determining compliance with this emission concentration limit.

(b) The emission limitation specified in Condition 22(a) shall be valid for a period not to exceed 24 months from the end of the Commissioning period. At such time the emission limitation specified in Condition 21(b) shall apply for all operating conditions except gas turbine start-up and shutdown periods, unless specific transient, non-steady state conditions are identified pursuant to conditions 22(f) and (g).

(c) Definitions

A transient, non-steady state condition shall occur when the following conditions exist:

(1) One or more equipment design features is unable to support rapid changes in operation and respond to and adjust all operating parameters required to maintain the steady-state NOx emission limit specified in condition 21(b). A change in operation shall be limited to one or more of the following: a change in combustion turbine load greater than 6 MW/minute; a change in SCR system space velocity greater than 50 ft/minute; initiation/shutdown of the evaporative cooler; initiation/shutdown of the duct burners; and a change in duct burner firing rate greater than 600,000 BTU/minute. Additional non-steady state conditions may be defined based upon operational experience and mutual written agreement of the owner/operator, the District, ARB, CEC CPM, and EPA.

(2) For purposed of this condition, transient, non-steady state conditions shall not include the start-up and shutdown periods that are the subject of condition 23.

(d) The owner/operator shall maintain continuous emission monitor. (CEM)

(e) data and complete records of plant emission performance under transient, non-steady state conditions. The owner/operator shall

record the NO_x emission concentration and document the cause of each transient, non-steady state condition with operational data. A description of the specific parameters that will be monitored to document a transient, non-steady state condition shall be submitted to the District, ARB, CEC CPM, and EPA for approval at least 60 days prior to the end of the Commissioning period.

(f) Within 6 months of the end of the Commissioning period, the owner/operator shall compile and submit source test data, using a District-approved test protocol, to assess NO_x emissions under transient, non-steady state conditions. A source test protocol shall be submitted to the District, CEC CPM, and EPA for approval at least 60 days prior to testing.

(g) Within 15 months of the end of the Commissioning period, the owner/operator shall submit a plan to the District, CEC CPM, and EPA designed to minimize emissions during transient, non-steady state conditions. The plan shall identify reasonable measures that will be taken to control NO_x emissions. This plan shall be based upon the CEM and source test data developed in accordance with condition 22(e) and actual operating experience during the proceeding months of plant operation. The plan shall be developed in consultation with the manufacturers selected for the gas turbine, HRSG, control systems, and air pollution control units. After the plan has been approved by the District, CEC CPM, and EPA, the owner/operator shall use the procedures described in the plan to minimize NO_x emissions during transient, non-steady state conditions.

(h) On a semi-annual basis, for the first 24 months after the end of the Commissioning period, the owner/operator shall provide a report to the District and the CEC CPM with continuous emission monitoring and source test data developed in accordance with this condition. The District will use the data and related operating experience to establish maximum NO_x emission limits for transient, non-steady state conditions for the following 6 month period. The District will consider operations at similar (e.g., electrical generation and fuel-type) facilities in determining the revised emission limits. In no event shall the NO_x emission limits established pursuant to section (g) be less than the NO_x emission limits specified in Condition 21(b). In addition, if appropriate, on a semi-annual basis the district will use all data and related operating experience to establish (i) a revised definition of transient, non-steady state conditions to which the NO_x emission limitations established pursuant to this section (g) shall apply, and (ii) the data collection and recordkeeping

requirements that the owner/operator shall use to document the occurrence of transient non-steady state conditions.

Verification: Approval of the source test protocols and the source test reports and submittal of the information required in this Condition shall be deemed as verification for this Condition. In addition, 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-23. The pollutant emission rates from each of the Gas Turbines (S-1 and S-3) during a start-up or shutdown shall not exceed the limits established below. These limits apply to any 60-minute period, not a three-hour average. (PSD)

	Start-Up (lbs/hr)	Shutdown (lbs/hr)
Oxides of Nitrogen (as NO_2)	223	58
Carbon Monoxide (CO)	1821	238
Precursor Organic Compounds (as CH_4)	239	253

Within three months of the end of the Commissioning period, the owner/operator shall submit a plan designed to minimize emissions during the transient conditions encountered during gas turbine start-ups and shutdowns. This plan shall indicate what steps will be taken to start controlling NO_X emissions as soon as feasible, including when ammonia can be fed to the SCR system without producing ammonia slip in excess of 10 ppmvd @ 15% O_2. This plan shall be based upon the experience gathered from the source tests performed per condition 13 and actual operating experience gained during the first six-months of operation. This plan shall also be developed in consultation with the manufacturers of the gas turbines, HRSGs, control systems, and air pollution control units. This plan shall be submitted to the CEC CPM for approval. After the plan has been approved, the owner/operator shall use the procedures included in the plan to minimize NO_X emissions during gas turbine start-ups and shutdowns.

Within 24 months of the end of the Commissioning period, the owner/operator shall submit a report to the District and the CEC CPM that establishes reasonable maximum hourly mass emission rates for start-up and shutdown conditions. The revised mass emission rates shall be based upon source test and continuous emission monitoring data. Pending approval of the District and the CEC CPM, these revised mass emission rates shall be established as new emission limitations that will supersede the limits included in this condition.

Verification: This permit condition will be verified with the implementation of Conditions 13, 35, 36, and 45. In the semiannual Air Quality Reports, the owner/operator shall indicate the date, times and duration of any violation to the NOx or CO limits presented in this condition. Approval of the plan and receipt of the report required by this condition are also part of the verification of compliance with this condition.

AQ-24. The Gas Turbines (S-1 and S-3) shall not be in start-up mode simultaneously. (PSD)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall report any violations of this condition.

Conditions for the Auxiliary Boiler (S-5)

AQ-25. The Auxiliary Boiler (S-5) shall be fired exclusively on natural gas with a maximum sulfur content of 1 grain per 100 standard cubic feet. (BACT for SO_2 and PM_{10})

Verification: Since the Auxiliary Boilers use the same source of natural gas as the Gas Turbines and the HRSGs, compliance with condition 14 is deemed as compliance with this condition with respect to the sulfur content of the fuel.

AQ-26. The heat input rate to the Auxiliary Boiler (S-5) shall not exceed 266 million BTU per hour, averaged over any rolling 3-hour period. (Cumulative Increase)

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

AQ-27. The cumulative heat input rate to the Auxiliary Boiler (S-5) shall not exceed 399,000 million BTU per year. (Cumulative Increase)

Verification: As part of the Air Quality Reports, the owner/operator shall include information on any violations of this annual fuel consumption limit.

AQ-28. The owner/operator of the Auxiliary Boiler (S-5) shall meet all of the requirements listed in (a) through (d) below, except during an Auxiliary Boiler Start-up or an Auxiliary Boiler Shutdown. (BACT, PSD)

(a) Nitrogen oxide emissions at P-3 (the exhaust point for the Auxiliary Boiler) shall not exceed 2.9 pounds per hour, calculated as NO_2. (PSD for NO_x)

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

(c) Carbon monoxide emissions at P-3 shall not exceed 9.8 pounds per hour. (PSD for CO)

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

(e) Precursor organic compound (POC) emissions at P-3 shall not exceed 0.36 pounds per hour.

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. The Auxiliary Boiler (S-5), its burners, combustion chamber, and exhaust system shall be designed and constructed so that the boiler can be retrofitted with an SCR system and/or an oxidizing catalyst in the event the Auxiliary Boiler cannot consistently comply with the emission limitations specified in condition 28. (BACT for NO_x and CO)

Verification: 45 days prior to the final order for the auxiliary boiler, the owner/operator shall submit a report to the CEC CPM with enough technical information to demonstrate that the boiler could be retrofitted with SCR and/or oxidizing catalyst.

Conditions for All Sources (S-1, S-2, S-3, S-4, and S-5)

AQ-30. The combined heat input rate to the Gas Turbines (S-1 and S-3), HRSGs (S-2 and S-4), and Auxiliary Boiler (S-5) shall not exceed 102,960 million BTU per calendar day. (PSD, CEC Offsets)

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

AQ-31. The cumulative heat input rate to the Gas Turbines (S-1 and S-3), HRSGs (S-2 and S-4), and Auxiliary Boiler (S-5) combined shall not exceed 32,900,000 million BTU per year. (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-32. Total combined emissions from the Gas Turbines, HRSGs, and Auxiliary Boiler (S-1, S-2, S-3, S-4, and S-5), 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 calendar day:

(a)	1190 pounds of NO_x (as NO_2) per day	(CEQA)
(b)	5224 pounds of CO per day	(PSD)
(c)	892 pounds of POC (as CH_4) per day	(CEQA)
(d)	842 pounds of PM_{10} per day	(PSD)
(e)	272.4 pounds of SO_2 per day	(BACT)

During days with two cold start-ups (the Gas Turbines have been out of service for more than 72 hours) daily combined NO_X emissions (as NO_2) from the Gas Turbines, HRSGs, and Auxiliary Boiler (S-1, S-2, S-3, S-4, and S-5) shall not exceed 1330 pounds per day. The number of days where the combined NO_X emissions are greater 1190 lb/day and less than 1330 lb/day shall be limited to 10 per consecutive twelve month period.

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. The reports should also identify the days on which two cold start-ups occurred and the associated maximum emissions.

AQ-33. Cumulative emissions from the Gas Turbines, HRSGs, and the Auxiliary Boiler combined (S-1, S-2, S-3, S-4, and S-5), 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)	153.2 tons of NO_x (as NO_2) per year	(Offsets, PSD)
(b)	487.5 tons of CO per year	(Cumulative Increase)
(c)	97.61 tons of POC (as CH_4) per year	(Offsets)
(d)	123.55 tons of PM_{10} per year	(Offsets, PSD)
(e)	39.86 tons of SO_2 per year	(Cumulative Increase)

Verification: As part of the Air Quality Reports, the owner/operator shall include information on the date after which these annual limits were exceeded.

AQ-34. The maximum projected annual toxic air contaminant emissions from the Gas Turbines, HRSGs, and the Auxiliary Boiler combined (S-1, S-2, S-3, S-4, and S-5) shall not exceed the following limits:

(a) 3,668 pounds of formaldehyde per year

(b) 41.7 pounds of benzene per year

(c) 76.2 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year;

unless the owner/operator meets the requirements of (d), (e), and (f) below:

(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 (District) approved procedures and unit risk factors in effect at the time of the analysis. The calculated excess cancer risk shall not exceed 1.0 in one million.

(e) The owner/operator shall perform a second risk analysis using the emission rates determined by source test and the procedures and unit risk factors in effect when the Determination of Compliance was issued. The calculated excess cancer risk shall not exceed 1.0 in one million.

(f) Both of these risk analyses 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 satisfy the conditions stated in parts (d) and (e) above, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (TRMP)

Verification: Compliance with condition 37 shall be deemed as compliance with this condition. In addition, approval by the District and the CEC CPM of the reports prepared for this condition will constitute a verification of compliance with this condition.

AQ-35. The owner/operator shall demonstrate compliance with conditions 15 through 18, 21(a) through 21(d), 23, 24, 26, 28(a) through 28(d), 32(a), 32(b), 33(a), and 33(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, and S-5.
(b) Oxygen (O2) Concentrations, Nitrogen Oxides (NOx) Concentrations, and Carbon Monoxide (CO) Concentrations at each of the following exhaust points: P-1, P-2 and P-3.
(c) Ammonia injection rate at A-1 and A-2 SCR Systems

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:

(d) Heat Input Rate for each of the following sources: S-1 and S-2 combined, S-3 and S-4 combined, and S-5.
(e) Corrected NOx concentrations, NOx mass emissions (as NO2), corrected CO concentrations, and CO mass emissions at each of the following exhaust points: P-1, P-2, and P-3.

For each source, source grouping, or exhaust point, the owner/operator shall record the parameters specified in conditions 35(c) and 35(d) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

(f) total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.
(g) on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and associated HRSG combined, the Auxiliary Boiler, and all five sources (S-1, S-2, S-3, S-4, and S-5) combined.
(h) the average NOx mass emissions (as NO2), CO mass emissions, and corrected NOx and CO emission concentrations for every clock hour and for every rolling 3-hour period.
(i) on an hourly basis, the cumulative total NOx mass emissions (as NO2) and the cumulative total CO mass emissions, for each calendar

day for the following: each Gas Turbine and associated HRSG combined, the Auxiliary Boiler, and all five sources (S-1, S-2, S-3, S-4, and S-5) combined.

(j) For each calendar day, the average hourly Heat Input Rates, Corrected NOx emission concentrations, NOx mass emissions (as NO2), corrected CO emission concentrations, and CO mass emissions for each Gas Turbine and associated HRSG combined and the Auxiliary Boiler.

(k) on a daily basis, the cumulative total NOx mass emissions (as NO2) and cumulative total CO mass emissions, for each calendar year for all five sources (S-1, S-2, S-3, S-4, and S-5) combined.

1-520.1, 9-9-501, BACT, Offsets, NSPS, PSD, Cumulative Increase)

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-36. To demonstrate compliance with conditions 23, 32(c) through 32(e), and 33(c) through 33(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 boiler. The owner/operator shall use the actual Heat Input Rates calculated pursuant to condition 35, 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 Boiler; and the five sources (S-1, S-2, S-3, S-4, and S-5) combined.

(b) (on a daily basis, the cumulative total POC, PM_{10}, and SO_2 mass emissions, for each year for all five sources (S-1, S-2, S-3, S-4, and S-5) combined.

(Offsets, PSD, Cumulative Increase)

Verification: 30 days prior to the expected end of the Commissioning period the owner/applicant shall submit to the CEC CPM a plan on how this condition will be implemented. This plan shall include default emission factors in the absence of source test data. The owner/applicant shall provide

a revised plan with the submission of the source test data required in conditions 38, 39, and 40.

AQ-37. To demonstrate compliance with Condition 34, 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 Boiler. (TRMP)

Verification: The owner/operator shall include these calculations in the semiannual reports submitted to the CEC CPM.

AQ-38. Within 60 days of start-up of the PDEF, the owner/operator shall conduct a District-approved source test on exhaust point P-1 or P-2 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with condition 21(e). The source test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, A-1 or A-2 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-1 or P-2. The source test shall be conducted over the expected operating range of the turbine (at a minimum, 60%, 80%, 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 21(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.

AQ-39. Within 60 days of start-up of the PDEF and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1 and P-2 while each Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum load to determine compliance with Conditions 21(a), (b), (c), (d), & (f) and while each Gas Turbine and associated Heat Recovery Steam Generator are operating at minimum load to determine compliance with Conditions 21(c), (d), & (f) and to verify the accuracy of the continuous emission monitors required in condition 35. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and 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 41, 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-40. Within 60 days of start-up of the PDEF and on an annual basis thereafter, the owner/operator shall conduct a District approved source test on exhaust point P-3 while the Auxiliary Boiler (S-5) is operating at maximum allowable operating rates to determine compliance with the emission limitations of Condition 28(a) through 28(d) and to verify the accuracy of the continuous emission monitors required in condition 35. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and emissions, and particulate matter (PM_{10}) emissions including condensable particulate matter. (BACT, offsets)

Verification: Approval of the source test protocols, as required in condition 41, 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-41. 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 30 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-42. Within 60 days of start-up of the PDEF 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 or P-2 while the Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum allowable operating rates to demonstrate compliance with Condition 34. Unless the requirements of condition 42(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 32,912,920 MM BTU/year.

(b) If three consecutive biennial source tests demonstrate that the emission rates calculated pursuant to part (a) for any of the compounds listed below are less than the annual emission rates shown, then the owner/operator may discontinue future testing for that pollutant: (TRMP)

Benzene	≤	221 pounds/year
Formaldehyde	≤	1,834 pounds/year
Specified PAH's	≤	38 pounds/year

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-43. The owner/operator shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Enforcement Division Policies & Procedures Manual. (Regulation 2-6-502)

Verification: Submittal of the reports to the CEC CPM constitutes verification of compliance of 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-44. The owner/operator shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emissions, monitor excesses, breakdowns, etc.), source test and analytical records, 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-45. The owner/operator shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Not withstanding 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-46. The stack heights of the emission points P-1 and P-2 shall be at least 150 feet above mean sea level (approximately 138.8 feet above grade level at the stack base). The stack height of the emission point P-3 shall be at least 100.6 feet above mean sea level (approximately 88.6 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-47. The Owner/Operator of PDEF 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-48. Within 180 days of the issuance of the Authority to Construct, 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 38, 39, 40, and 42. 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 meeting are held.

AQ-49. Prior to the issuance of the BAAQMD Authority to Construct for the Pittsburg District Energy Facility, the Owner/Operator shall demonstrate that valid emission reduction credits in the amount of 176.18 tons/year of Nitrogen Oxides, 112.25 tons/year of Precursor Organic Compounds, and 123.55 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 option to purchase contracts 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-50. Prior to the start of construction of this facility, the Owner/Operator shall provide emission reduction credits in the amount of 176.18 tons/year of Nitrogen Oxides, 112.25 tons/year of Precursor Organic Compounds, and 123.55 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 offsets or emission reduction credits (ERCs) to the CEC CPM.

AQ-51. Pursuant to BAAQMD Regulation 2, Rule 6, section 404.1, the owner/operator of PDEF shall submit an application to the District for a Federal (Title V) Operating Permit within 12 months of the date of issuance of the BAAQMD Permit to Operate for the PDEF. (Regulation 2-6-404.1)

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.

Conditions Not Included in the District's Permit Conditions

AQ-52. 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 minimum guarantee drift rate of 0.0005%. The maximum total dissolved solids (TDS) sampled at the based of the cooling tower or at the point of return to the wastewater facility shall not be higher than 2550 mg/l. The owner/operator shall sample the water at least once a day.

Verification: The owner/operator shall submit to the CEC CPM a 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-53. Before ERCs generated from sources located outside the Pittsburg/Antioch area are used, direct NO_x and VOC emissions shall be offset with the available ERCs generated by the permanent closure of the Owens-Broackway facility located in the city of Antioch. SO_x ERCs used to offset direct PM10 emissions shall also be obtained from the same source before other sources are used, if needed.

Verification: At least 30 days prior to the start of construction, the owner/operator must submit a copy of the required offsets or ERCs to the CEC compliance manager demonstrating compliance with this condition.

Additional California Energy Commission Permit Conditions Applicable to Construction Activities: These conditions are not included in the District's Determination of Compliance/Authority to Construct.

For the purposes of these conditions on construction activities, 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 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-54. The project owner shall implement a CEC CPM approved fugitive Dust Control Plan.

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 (from attached Table 1) to be applied to each of the sources of dust emissions identified above (including those required in AQ-55 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 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-55. 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 laydown 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-55 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-56. At any time when fugitive dust from PDEF 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.

AQ-57. Upon completion of construction, the project owner will ensure that all areas within the largest extent of the final footprint (as 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) containing soil that exceed the approved arsenic background concentration of 24 mg/kg are capped with a minimum 1-foot thickness of one or more of the following: soil, gravel, asphalt or concrete paving, or buildings.

Verification: As part of the fugitive dust control plan required in AQ-54, the project owner will specify measures that will be taken to comply with AQ-57, or indicate that capping is not required based on revised regulatory levels approved by DTSC. The plan will include the areas subject to capping and methods used.

AQ-58. 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 Delta Energy Center and in consultation with BAAQMD to be located in the Pittsburg-Antioch area. The project owner and Delta

Energy Center 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 Delta Energy Center and in consultation with BAAQMD. The project owner shall submit summaries of the air quality measurements in the Monthly Compliance Reports.

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.
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

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
	percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	Apply chemical stabilizers within five working days of grading completion; OR
	Take either the first or third action specified below 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 the three control actions immediately above such that, in total, these actions apply to all inactive disturbed surface areas.
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, for vegetative ground cover specified under “inactive disturbed surface areas”; OR
	Utilize any combination of the three control actions immediately above 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.

B. PUBLIC HEALTH

Normal operation of the PDEF facility would result in the routine release of potentially toxic air contaminants. This analysis considers whether such routine emissions would cause significant adverse public health impacts or violate standards for public health protection.

SUMMARY OF EVIDENCE

1. Noncriteria Pollutants

Toxic air contaminants are called "noncriteria pollutants" because no ambient air quality standards have been established for them.[1] Ambient standards are outdoor air pollution levels that are considered safe for everyone. (Ex. 28, p. 53.) Since there are no specified levels for noncriteria pollutants, a health risk assessment is performed to evaluate potential health effects from project emissions. A health risk assessment includes the following steps:

- Identify hazardous substances emitted by the project and emission rates;
- Estimate ambient concentrations of emissions using dispersion modeling;
- Estimate exposure levels to affected populations through inhalation, ingestion, and dermal contact; and
- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (5/3 RT 126-127.)

2. Potential Impacts

During construction, public health risks may be associated with arsenic contaminated soils that could be dispersed in airborne dust. Mitigation measures to control fugitive dust from contaminated soils are included in Conditions AQ 54-57 in the AIR QUALITY section of this Decision. (5/3 RT 136-137.)

During project operation, noncriteria pollutants 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 in the cooling tower. (5/3 RT 112-113.) Applicant used the California Air Toxics Emission Factor (CATEF) database published by the California Air Resources Board (CARB) to determine

[1] The AIR QUALITY section discusses "criteria pollutants," i.e., those pollutants for which air quality standards have been established. Project emissions of criteria pollutants will conform with applicable law to protect against potential adverse public health effects.

exposure levels and risks. (*Ibid*.) The CATEF database lists those pollutants typically emitted during power plant operations.[2]

Applicant's witness, John Koehler, testified that he calculated emissions from the gas turbines and boiler assuming natural gas combustion at maximum load conditions. (5/3 RT 113.) He also calculated the maximum potential emissions of ammonia from operation of the Selective Catalytic Reduction (SCR) emissions control system.[3] (5/3 RT 113, 132-135.) Potential emissions of chemicals and pathogens in cooling tower drift were calculated from water quality data provided by the Delta Diablo Sanitation District (DDSD). (5/3 RT 117-119; Ex. 29, p. 4.)

3. Health Risk Assessment

The health risk assessment addresses three categories of health impacts: acute and chronic noncancer effects, and cancer risk. (Ex. 28, p. 54.) Acute effects result from short-term (1-hour) exposure to relatively high concentrations of pollutants that would cause irritation of eyes, nose, or respiratory tract. Chronic health effects, such as emphysema, may result from long-term exposure to lower pollutant concentrations. (*Ibid*.)

The analysis for acute and chronic effects compares the maximum project contaminant levels to reference exposure levels (REL).[4] (Ex. 1, p. 5.16-4; Ex. 28, p. 55.) Health risk is measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. (Ex. 1, p. 5.16-6.) A total "hazard index" of less than 1.0 is considered an insignificant health risk. (*Id*., p. 5.16-7; Ex. 28, p. 56.)

To assess potential carcinogenic effects, the analysis assumes *daily* exposure over a 70-year lifetime to the maximum pollutant concentrations at the location of maximum impact. (5/3 RT 116-117.) Using these worst-case screening assumptions means that actual cancer risks are likely to be considerably lower

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[2] These substances are listed in Staff's Public Health Tables 1 and 2 (Ex. 28, pp. 61-62.) Combustion emissions include: acetaldehyde, acrolein, ammonia, benzene, 1,3-butadiene, formaldehyde, napthalene, PAHs, propylene oxide, toluene, and xylene. Cooling tower emissions include: arsenic, beryllium, cadmium, hex chromium, copper, lead, manganese, mercury, selenium, silica, sodium hydroxide, sulfate, and zinc.

[3] In response to Committee questions regarding ammonia slippage, Staff and Applicant concurred that the SCR will degrade and ammonia slippage will occur. The maximum allowable slippage is 10 ppm, however, the design basis from the manufacturer is a target number of 5 ppm. The catalyst will be replaced every 3–5 years and continuous NO_x emission monitoring will be employed, including source testing for ammonia. (5/3 RT 133-135, 138-139.)

[4] Safe "reference exposure levels" are listed in the California Air Pollution Control Officers Association (CAPCOA) Air Toxic "Hot Spot" Program Risk Assessment Guidelines. These health based standards are designed to protect the most sensitive members of the population, i.e., the very young, the elderly, and those with existing respiratory illnesses. (Ex. 28, p. 54-55.)

than those estimated.[5] (Ex. 28, p. 55; 5/3 RT 127.) The risk assessment presumes that a project-related cancer risk of less than one chance in one million ($1x10^{6)}$ is not significant.[6] (Ex. 1, p. 5.16-6; Ex. 28, p. 56.)

Consistent with health risk screening procedures contained in CAPCOA guidelines, Applicant used air dispersion modeling (based on worst-case meteorological conditions) to determine the location of maximum health risks. (Ex. 5.16-3.) Applicant found that the maximum impacts would occur at the southern base of the Montezuma Hills, five and a half miles to the east across the Delta on elevated terrain where no one resides.[7] (5/3 RT 113-114, 116; Ex. 29, p. 3.)

The following Table, replicated from Table 3 in Staff's testimony on Public Health, shows the hazard index/risk from exposure to the contaminants at the point of maximum impact. (Ex. 28, p. 63.) All of the calculated risks fall well below significance levels. (Ex. 1, pp. 5.16-7 and 5.16-8.)

Facility Hazard/Risk Table

Type of Hazard/Risk	Hazard Index/Risk	Significance (Safe) Level
Acute Noncancer	0.04	1.0
Chronic Noncancer	0.018	1.0
Individual Cancer	$0.5x10^{-6}$	1.0×10^{-6}

Source: AFC Supplement Table 5.16-1S, p. 5.16-3 and revised 3/99 HRA results; Ex. 28, p. 63.

As shown in the Table, the estimated risk of cancer from project emissions is 0.5 in one million. Mr. Koehler testified that this estimated risk is a probability statement based on worst-case assumptions; it does not mean that someone would actually develop cancer. (5/3 RT 115-116.)

4. Cooling Tower Drift

Disinfected tertiary recycled water (DTRW) used in the cooling tower may contain pathogens such as viruses and bacteria. (5/3 RT 117-119.) In response to concerns raised by the City of Antioch regarding toxic pathogens, Applicant and

[5] The sample of a maximally exposed individual (MEI) is very conservative in the sense that no real 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. (Ex. 1, p. 5.16-9.) According to Applicant, the greatest true exposure is likely to be significantly lower than that calculated using the MEI assumption. (*Ibid*.)

[6] This risk level is based on the Bay Area Air Quality Management District's (BAAQMD) risk management policies. (Ex. 1, p. 5.16-6.)

[7] Applicant's witness, Mr. Koehler, testified that the highest impacts from the turbine stacks, which are the tallest project facilities and exhaust hotter velocity gas, were predicted at five and a half miles to the east in the prevailing downwind direction. The maximum impact from the combined operation of all project elements coincides with the turbine impacts. (5/3 RT 113-114.)

Staff calculated the potential risk of infection from cooling tower drift. (Ex. 29, p. 3.)

Regulations proposed by the California Department of Health Services (DHS) require that if wastewater is used in cooling towers, it must be DTRW. The regulations further specify that the degree of disinfection, as well as the final allowable concentration of pathogens, is a 99.999 percent reduction.[8] (Ex. 28, p. 61.) Applicant confirmed that DDSD would meet these requirements. (5/3 RT 117-119.) Daily monitoring of coliform bacteria would also occur as required. (Ex. 29, p. 4.) Further, the project's state-of-the-art drift eliminator will control potential downwind exhaust. The maximum deposition of cooling tower drift is within the project fenceline. (*Ibid*.) Both Staff and Applicant agree that the risk to public health from pathogens contained in cooling tower drift is insignificant*. (*5/3 RT 119; Ex. 29, p. 4*.)*

Dr. William Faisst testified, on behalf of the City of Antioch, that he supports using DTRW in the cooling tower and recommends downwind monitoring to verify performance of the drift eliminator. (5/3 RT 143-144.) Staff testimony noted that the drift eliminator is designed to operate at high efficiency and with proper maintenance, little degradation is expected. (Ex. 29, p. 4.)

5. Cumulative Impacts

Staff's witness testified that the cumulative impacts of the project, even when considered with the impacts of the proposed Delta Energy Center and the existing Dow Chemical plant are *de minimus* in terms of cancer risk, noting that the "point of maximum impact" locations for these facilities are not coincident. (5/3 RT 130-132; Ex. 29, p. 3.) The witness clarified that *de minimus*, as defined by CEQA, means that the environmental conditions would essentially be the same whether or not the proposed project is implemented.[9] (*Ibid.*)

6. Truck Bypass Road

Mr. M. S. Lengyel presented public comment at the May 26th hearing regarding the carcinogenic effects of diesel fuel exhaust and the potential impacts on public health from vehicle emissions along the Truck Bypass Road.[10] In response to

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[8] See, Regional Water Quality Control Board Order 96-110, which is consistent with the proposed DHS regulations (Cal. Code of Regs., tit, 22, § 60301.100 et seq.; 5/3 RT 117-119.) Mr. Koehler testified that his modeling (to determine how this reduced level of pathogens would disperse in cooling tower drift) resulted in an extremely low count of insignificant measurements, i.e., "about point nine zeroes five viruses for cubic meter of air." (5/3 RT 119.) Mr. Koehler believes this data supports a finding that use of DTRW is protective of public health. (*Ibid*.)

[9] Title 14, California Code of Regulations, section 15064(i)(4).

[10] In 1992, the City of Pittsburg certified a Final Environmental Impact Report (FEIR) for the Waterfront Truck Route that included the Truck Bypass Road. Applicant agreed to build the

public concern, Staff performed an independent analysis of potential impacts. [11] Staff determined that the number of vehicles expected to use the road would be lower than estimated in the 1992 Final Environmental Impact Report (FEIR). (5/3 RT 140-141; Ex. 29, pp. 5-6.) Moreover, since 1992, the California Air Resources Board (CARB) has adopted measures to reduce particulate matter from diesel-fueled engines, including fuel formulation standards (1993), emission standards for new vehicles (phased in 1982-1996), and requirements for fleet inspection and maintenance of heavy-duty vehicles (1998). (*Ibid*.) Since prevailing winds are from the west, the closure of existing truck routes further west of Central Addition and routing traffic on the bypass road east of Central Addition would tend to decrease exposure to diesel exhaust.[12] (Ex. 29, p. 6.) Staff concluded that these factors reduce potential health impacts to insignificant levels. (5/3 RT 130.)

COMMISSION DISCUSSION

Staff and Applicant agreed that the calculated risks of adverse health effects from project emissions are insignificant. There was no evidence to contradict this conclusion. The parties relied on the well-established risk assessment tools that are typically used for this type of analysis. The Commission concludes, therefore, that the expert testimony on public health is persuasive and that public health risks from project operations are likely to be insignificant.

Regarding Mr. Lengyel's concern about diesel fuel exhaust, CARB has adopted several measures that have been effective in reducing emissions from diesel exhaust. The Commission agrees with Mr. Lengyel's request, however, to sever the Truck Bypass Road from the certification of PDEF. We believe the bypass road is a local matter between the community and the City of Pittsburg. It is not included in the certification. See, TRAFFIC AND TRANSPORTATION.

FINDINGS AND CONCLUSIONS

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

1. Normal operation of the PDEF facility will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

Truck Bypass Road for the City of Pittsburg. The FEIR examined potential local and regional air quality impacts related to the Truck Bypass Road and found that impacts would be insignificant. The bypass road is discussed in the TRAFFIC AND TRANSPORTATION section of this Decision.

[11] The AIR QUALITY section discusses criteria pollutants related to the Truck Bypass Road.

[12] CARB established an Advisory Committee to Address Toxic Air Contaminants from Diesel-Fueled Engines to identify additional control measures to further reduce public exposure to toxic air contaminant emissions from diesel-fueled engines.

2. Emissions of criteria pollutants, which are discussed in the AIR QUALITY section of this Decision, will be controlled to levels consistent with those allowed under applicable law.

3. A health risk assessment, using well-established criteria, analyzed the potential public health effects of noncriteria pollutants emitted by PDEF.

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. Potential cumulative impacts that may result from the combined operations of PDEF, Delta Energy Center, and Dow Chemical are *de minimus.*

7. Fugitive dust from contaminated soils encountered during excavation and construction will be controlled by mitigation measures identified in Conditions AQ 54-57 found in the AIR QUALITY section of this Decision.

8. Pathogens that may occur 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.

9. Potential health impacts from vehicle emissions on the Truck Bypass Road are likely to be insignificant.

10. With implementation of the Condition of Certification below, the project will conform with all applicable laws, ordinances, regulations, and standards relating to public health as identified in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 Any soil that is to be imported shall be sampled and analyzed by the project owner for: metals, total petroleum hydrocarbons (TPH) as motor oil, gasoline, and diesel, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) to document that the imported soil does not contain concentrations of these compounds in excess of health-based risk levels.

The project owner shall maintain records documenting the sampling and analysis that has been performed pursuant to Condition PUBLIC HEALTH-1 and shall make such records available to the Energy Commission Compliance Project Manager upon request.

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 will protect the health and safety of workers during project construction and operation, and provide adequate fire protection and emergency service response. Specifically, the Commission has considered whether the measures contained in the Health and Safety Plan will comply with all applicable safety laws, ordinances, regulations, and standards (LORS) designed to protect industrial workers.[1]

SUMMARY OF EVIDENCE

1. Potential Impacts to Worker Safety

During excavation of the PDEF site, construction workers may come into contact with contaminated soil and groundwater. During construction and operation, workers may be exposed to chemical spills, hazardous waste, fires, gas explosions, live electric conductors, confined space entry and egress problems, and heavy equipment failure. (Ex. 28, p. 72.)

2. Mitigation Measures

To protect workers from job-related injuries and illnesses, Applicant must comply with Cal/OSHA requirements by implementing a comprehensive health and safety plan that includes 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. (Ex. 1, p. 5.17-2 et seq.)

a. Fire Protection and Prevention

PDEF is located in an industrial area where fire protection is provided by the Contra Costa Fire Protection District. (Ex. 28, p. 71.) The project will rely on local fire protection services and onsite fire protection systems. (Ex. 1, p. 5.17-4.)

There are three fire stations located close to the facility. The equipment and response times of each station is shown in WORKER SAFETY Table 1 below, which is replicated from Staff's testimony. (Ex. 28, p. 72.)

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[1] PDEF's Health and Safety Plan is based on the California Occupational Health and Safety Administration's (Cal/OSHA) regulations for industrial workers. (Cal. Code of Regs., tit. 8, § 1500 et seq.) See also, Electrical Safety Orders (Cal. Code of Regs, tit. 8, §§ 2299-2974) and Unfired Pressure Vessel Safety Orders (Cal. Code of Regs., tit. 8, §§ 450-544.)

WORKER SAFETY Table 1
Fire Station/Fire Protection Capabilities

Station	Response time	Equipment	Number of Firefighters
Station 84 200 E. 6th St. Pittsburg, CA	3 minutes	1 engine 1 truck 1 power wagon 1 water tender (2000 gallons Capacity)	6
Station 85 2255 Harbor St. Pittsburg, CA	5 minutes	1 engine 1 power wagon	3
Station 86 3000 Willow Pass Pittsburg, CA	5 minutes	1 engine 1 power wagon	3

None of the three fire stations has hazardous materials response capabilities. (Ex. 28, p. 71.) If there is a hazardous materials incident, the fire stations will request assistance from the Contra Costa HazMat Team. (*Ibid.*) During emergency situations, response teams will enter the PDEF facility via East 3rd Street. (4/29 RT 219; Ex. 2, Worker Safety Response-1.)

Onsite, the project will include a dedicated water supply with the capacity to provide two hours of onsite fire-extinguishing capacity. Fire protection systems will be dedicated to the transformers, turbine lubrication oil equipment, and cooling tower.

Applicant will install fire alarms, fire detection and sprinkler systems, carbon dioxide extinguishing systems, portable fire extinguishers, and hose stations throughout the plant. According to Staff, these measures will meet the minimum fire protection requirements established by law. (Ex. 28, p. 72, 74.)

State law requires fire protection plans for both the construction and operation phases of the project. Applicant will provide the final diagrams and plans to the Commission and to the Contra Costa County Fire Protection District prior to project construction and again prior to operation. The fire protection and prevention measures are included in Conditions SAFETY-1 for construction and SAFETY- 2 for operation. (Ex. 28, p. 73, 75.)

Staff and Applicant agreed that the project would not adversely affect existing fire protection services.[2] (*Id.*, p. 72.)

After the record was closed on this topic, the Contra Costa Fire Protection District submitted information stating that its existing ladder truck and Type 1 fire engine are obsolete and due for replacement. In order to service PDEF and the prospective Delta Energy Center (DEC), the Fire District requests that PDEF and DEC provide funds to replace the equipment. (6/15 RT 10 et seq.) The Committee directed Staff to conduct a public workshop to resolve this issue and provided guidance to the parties to use a proportional benefit approach in allocating costs, if any, to PDEF and DEC. (6/15 RT 18-20.) The Committee will entertain a motion to reopen the record on the Fire District's concerns, if necessary. Pending resolution of this issue, however, the Decision is based on the evidence of record as submitted.

b. Injury and Illness Prevention Programs

The primary mitigation measures to protect workers during construction and operation are contained in PDEF's Injury and Illness Prevention Programs (IIPPs), which include safety procedures, such as the required use of personal protective equipment, and safety training requirements. (Ex. 1, p. 5.17-5.) Staff reviewed the IIPPs and found them adequate; however, Staff recommended that Applicant consult with Cal/OSHA onsite during project construction and again during operation to evaluate the safety measures in practice. (Ex. 28, p. 74.) This recommendation is included in Conditions WORKER SAFETY-1 and 2.

c. Emergency Action Plan

The Emergency Action Plan addresses potential emergencies such as the accidental release of hazardous materials, fires, explosions, pressure vessel ruptures, and other catastrophic events. Applicant's proposal includes fire and emergency reporting procedures, evacuation procedures, and a Spill Prevention/Control and Countermeasures Plan.[3] (Ex. 28, p. 74.) Condition WORKER SAFETY-2 requires PDEF to submit a final Operation Emergency Action Plan to Cal/OSHA for review and comment after an on-site consultation.

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[2] Staff and Applicant asserted that a portion of PDEF's development fee is dedicated to the county's Fire Protection District. However, this assertion was challenged by the Contra Costa Fire Protection District explaining that "pass through" funding will not be provided because the project site is within a redevelopment area. (6/15 RT 10.) See, the SOCIOECONOMICS section of this Decision.

[3] A more detailed description of this measure is found in the section on HAZARDOUS MATERIALS MANAGEMENT.

d. General Safety

In addition to the specific plans listed above, there are other "safe work practices" applicable to this project that 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. 28, pp. 75-77.)

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 if Applicant implements the Conditions of Certification proposed by Staff. Applicant has agreed to the Conditions. (4/29 RT 217.)

FINDINGS AND CONCLUSIONS

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

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 a comprehensive health and safety plan that includes 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.

4. There are three fire stations within a five-minute response time to the project site.

5. The Contra Costa County HazMat response team will provide emergency services in the event 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.

9. Implementation of the Conditions of Certification will ensure that the project conforms will 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 as follows:

- Construction Injury and Illness Prevention Program
- Construction Fire Protection and Prevention Plan
- 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 onsite consultation, 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 Department for review and acceptance.

Verification: At least 30 days prior to the start of construction, or a date agreed to by the CPM, the project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program and the Personal Protective Equipment Program, incorporating Cal/OSHA's Consultation Service comments. The project owner shall provide a letter from the Contra Costa County Fire Department stating that they have reviewed and accepted the Construction Fire Protection and Prevention Plan.

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

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

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the

California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for onsite consultation, 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 Department 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.

D. HAZARDOUS MATERIAL MANAGEMENT

This analysis considers whether the construction and operation of PDEF 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 that are reviewed in the following discussion.

SUMMARY OF EVIDENCE

1. Potential Impacts

Tables 5.15-1 and 5.15-2, appended to the Conditions, list the hazardous materials that will be used onsite.[1] The hazardous materials that pose the greatest risk to public health and safety include aqueous ammonia, sulfuric acid, and natural gas. (5/3 RT 91.)

Other hazardous materials stored onsite in smaller quantities such as scale inhibitors (phosphate), oxygen scavengers, caustics for pH control, and hydrogen for generator cooling will not pose significant off-site impacts. (Ex. 28, p. 95.)

2. Aqueous Ammonia

The use of aqueous ammonia poses the principal risk of impacts in the event of a major accidental release. Applicant has proposed using aqueous ammonia as a substitute for the more hazardous anhydrous form of ammonia, which has a higher internal energy when stored as a liquified gas. A release of liquified gas can rapidly introduce large quantities of the material into the ambient air where it can be transported off-site in high down-wind concentrations. The use of aqueous ammonia reduces the risk because emission of ammonia in an aqueous solution is driven by evaporation from the surface of the spilled solution. (Ex. 28, p. 95.)

Aqueous ammonia is used to control NOx emissions resulting from the combustion of natural gas. The accidental release of ammonia can result in hazardous down-wind concentrations of ammonia vapors. (Ex. 28, p. 98.) Applicant performed an atmospheric dispersion modeling analysis to determine the worst-case scenario in the event of a liquid spill resulting in an evaporating pool. (Ex. 7, p. 5.15-3.) This modeling indicates that a worst-case release would not result in significant ammonia concentrations above 75 parts per million (ppm) beyond the site boundaries. (*Id*., p. 5.15-4.) Staff's APPENDIX A Table 1, replicated below, shows the acute ammonia exposure guidelines for different sectors of the population. (Ex. 28, p, 105.) This table indicates that most

[1] These tables were originally submitted in the AFC. Table 5.15-1 was revised and admitted into the record as Exhibit 16. Condition HAZ-1 limits the hazardous materials used onsite to those listed in the tables.

members of the general population can tolerate an exposure level of 75 ppm for up to 30 minutes.

Applicant determined that an accidental spill is most likely to occur during the truck unloading process. (5/3 RT 86.) Mitigation measures include an underground secondary containment vault in the delivery area and a double-walled storage vessel to confine all significant ammonia concentrations to the project site. (*Ibid*.; Ex. 1, pp. 5.15-13, 5.15-14.) Delivery trucks would drive into the paved unloading pad that would be bermed so that any release would drain into the catch basin and flow into a containment vault underground. (*Ibid.*; 5/3 RT 96.) Aqueous ammonia will be stored onsite in two 10,000 gallon double-walled storage tanks to provide additional control; in the event of failure of the primary tank, the contents would drain into the secondary tank surrounding it. (5/3 RT 87, 91; Ex. 1, p. 5.15-13.)

Staff's expert witness Rick Tyler testified that with implementation of the proposed mitigation measures, there should not be any significant offsite ammonia concentrations. (5/3 RT 92.)

3. Sulfuric Acid

The form of sulfuric acid proposed for use is diluted by water and as a result, has virtually no vapor pressure. An accidental release would not result in any evolution of sulfuric acid into the environment. (5/3 RT 91.)

4. Natural Gas

The project will require large amounts of natural gas, which poses a risk of both fire and explosion. (Ex. 28, p. 95.)

The primary risk of fire and/or explosion from project activities is from natural gas that is used as fuel by PDEF. While natural gas will be used in significant quantities, it will not be stored onsite. The risk of fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and implementation of effective safety management practices. (Ex. 28, p. 99.) The National Fire Protection Association (NFPA) Code 85A requires: 1) the use of double block and bleed valves for gas 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 the gas turbines and fire boxes to prevent buildup of an explosive mixture. (Ex. 28, p. 99.)

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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 (HENDERSON AND-HAGGARD 1943) ALL CONCLUDE THAT AVAILABLE DATA CONFIRM THE DIRECT RELATIONSHIP TO INCREASES IN EFFECT WITH BOTH INCREASED EXPOSURE AND INCREASED EXPOSURE DURATION.

**THE (NRC 1979) DESCRIBES A STUDY INVOLVING YOUNG ANIMALS WHICH SUGGESTS GREATER SENSITIVITY TO ACUTE EXPOSURE IN YOUNG ANIMALS. THE (WHO 1986) 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-SPECIFICIRRITANTS .

5. Risk Management Plan

Applicant will prepare a Risk Management Plan and a Safety Management Plan to be reviewed by the U.S. Environmental Protection Agency (EPA), and appropriate local agencies for approval prior to use or handling of hazardous materials onsite. (4/3 RT 89-90, 92-93.) Condition HAZ-2 reflects these requirements.

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 aqueous ammonia, sulfuric acid, and natural gas.

3. To mitigate against hazardous down-wind concentrations of ammonia gas, the project will include two double-walled 10,000 gallon ammonia storage tanks and a secondary underground containment vault in the truck delivery area.

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.

7. 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.

8. With implementation of the Conditions of Certification below, PDEF 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 in Tables 5.15-1 and 5.15-2 (attached 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 a 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 any hazardous materials to the facility, the project owner shall provide the final approved plans listed above to the CPM.

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HAZARDOUS MATERIALS TABLE 5.15-1 - NOTE AVAILABLE IN PDF VERSION

HAZARDOUS MATERIALS TABLE 5.15-2 - NOT AVAILABLE IN PDF VERSION

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.

The management of hazardous waste is regulated by federal and state laws. Hazardous waste generators must obtain EPA identification numbers, and use only permitted treatment, storage, and disposal facilities. The transfer of hazardous waste to disposal facilities must be handled by registered hazardous waste transporters.

SUMMARY OF EVIDENCE

1. Site Excavation

Excavation activities may expose construction workers to hazardous metals or organics in the soil. Applicant commissioned a Phase I Environmental Site Assessment (ESA) to determine whether the site, owned by USS-POSCO, had been contaminated by industrial uses. (Ex. 1, p. 5.14-4.) The Phase 1 ESA found that USS-POSCO formerly used a portion of the site for sludge-drying beds, however, the contaminated soil from those beds was excavated and removed in 1991. (*Ibid.*) Except for a limited area of shallow soils containing arsenic, no other soil samples contained contaminants that exceeded the Health Based Cleanup Levels (HBL) for onsite construction workers. (*Ibid.*)

Applicant initially proposed capping the arsenic-contaminated soils to eliminate the need to transport soil offsite. (Ex. 28, p. 115.) In April, 1999, USS-POSCO submitted a site-specific Corrective Measures Study (CMS) to the California Department of Toxic Substances Control (DTSC) recommending that arsenic-contaminated soils be reused onsite without restriction.[1] (Ex. 40; 5/3 RT 67.) Applicant and Staff agree that arsenic-contaminated soils can be managed safely onsite either by capping or by reusing the soils as backfill. (5/3 RT 68, 70-73, 81.) Dust suppression measures will be implemented to prevent arsenic-contaminated soils from dispersal by air. (5/3 RT 80; Conditions AQ 54-57.)

As a further mitigation measure during excavation activities, Applicant will employ a qualified environmental consultant onsite to monitor conditions that may indicate contaminated soils. (Ex. 28, p. 115: 5/3 RT 73.)

[1] The DTSC has not to date accepted the CMS recommendations. (5/3 RT 70.) However, Applicant believes that DTSC will concur with the recommendations based on the site-specific analysis that reviewed concerns such as bio-availability of the arsenic and concluded that no further action is needed. (*Ibid.*)

Site preparation will also require Applicant to dismantle the existing onsite rail spur line and remove the creosote-treated wooden railroad ties owned by USS-POSCO. The ties will be recycled for offsite landscaping or disposal at a Class II landfill. (5/3 RT 75; Ex. 28, p. 115.)

2. Construction

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. 28, p. 115.) These materials will be collected in hazardous waste accumulation containers near the point of generation. The containers will be taken to the construction contractor's hazardous waste storage area and, within 90 days, will be transported by a licensed hazardous waste disposal service. (Ex. 1, p. 5.14-6.)

The project will generate up to 1,000 tons of non-hazardous solid waste during construction, including debris, excess concrete, lumber, scrap metal, insulation, packaging, paper, wood, glass, plastic, and empty non-hazardous chemical containers. (Ex. 1, p. 5.14-3.) 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.)*

3. Operation

Hazardous wastes generated during routine project operation include used oil, cleaning solutions, solvents, spent air pollution control catalyst, paint, contaminated cleanup materials, demineralizer regeneration waste, and empty chemical containers. (Ex. 28, p. 116.) About 1,825 gallons (6 tons) of waste oil and solvents, generated annually, will be transported to licensed petroleum recycling facilities in California. (Ex. 1, p. 5.14-7.) Materials that cannot be recycled will be transported to a Class I landfill. (*Id.*, p. 5.14-6.)

Spent lead acid batteries will be returned to the manufacturer for recycling. (Ex. 1, p. 5.14-7.) The oxidation catalyst (used for CO emissions control) and the selective catalytic reduction catalyst (used for NO_x emissions control) will be returned to the manufacturer at intervals of 3.5 years for reclamation or disposal at a Class I facility. (*Ibid.*)

Nonhazardous wastes accumulated during operation would include trash, office waste, empty containers, broken or used parts, packing materials, and used filters. (Ex. 28, p. 116.) Waste such as paper, cans, and plastic will be recycled to the extent possible, and the remainder disposed on a regular basis to a Class III landfill. Other nonhazardous wastes will be disposed at a Class II landfill such as the Keller Canyon Landfill in Pittsburg. (Ex. 1, pp. 5.14-3, 5.14-7.)

4. Wastewater

During construction, wastewater generated at the construction sites (including linear facilities) will include sanitary wastes, and may include stormwater runoff and equipment washwater. (Ex. 1, p. 5.14-4.) Applicant has prepared a preliminary erosion control/stormwater management plan to handle stormwater runoff in accordance with state and local law. (Ex. 5.) Sanitary wastes will be collected in portable self-contained chemical toilets and transported by licensed contractors to a wastewater treatment facility. (*Ibid*.)

During operation, wastewater from cooling tower blowdown will be treated and discharged to the Delta Diablo Sanitation District (DDSD) or returned to the cooling tower basin. (Ex. 1, p. 5.14-4.) Sanitary drains will be discharged to the sanitary sewer line in 3rd Street adjacent to the site. (*Ibid.*)

5. Potential Impacts on Waste Disposal Facilities

The quantities of nonhazardous materials generated during construction and operation are insignificant relative to existing landfill disposal capacity. (See, WASTE Tables 1 and 2 on following page. Replicated from Applicant's Tables 5.14-1 and 5.14-2.) Hazardous waste is accepted at three Class I landfills in California,[2] all of which have the capacity to receive the project's hazardous waste that is not recycled. (Ex. 28, p. 117.)

COMMISSION DISCUSSION

The evidence was uncontroverted that hazardous wastes generated by the project will be managed in accordance with applicable law. Applicant proposes to manage arsenic-contaminated soils onsite rather than removing those soils for disposal at an appropriate landfill. The Department of Toxic Substances Control is currently reviewing Applicant's proposals. Applicant's compliance with the soil management plan approved by DTSC will ensure that the arsenic-contaminated soils do not cause harm to onsite workers or to the environment. The parties further agree 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.

[2] Kettleman Hills (Kings County); Laidlaw Environmental Service's Lokern facility in Buttonwillow (Kern County) , and Laidlaw Environmental Service's Westmoreland facility (Imperial County).

WASTE MANAGEMENT Table 1 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 1, Table 5.14-1

WASTE MANAGEMENT Table 2 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 1, Table 5.14-2

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. Excavation activities may expose construction workers to hazardous metals or organics in the soil.

3. Applicant's Phase I Environmental Site Assessment (ESA) found a limited area of shallow soils containing arsenic that can be managed onsite with the approval of the Department of Toxic Substances Control.

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 tranported by registered hazardous waste transporters to one of the three California Class I landfills.

6. Nonhazardous wastes that cannot be recycled will be disposed at nearby Class II or Class III landfills, including Keller Canyon Landfill in Pittsburg.

7. Applicant's erosion control/stormwater management plan will control stormwater runoff in conformance with applicable law.

8. Wastewater will be recycled or returned to the Delta Diablo Sanitation District's Wastewater Treatment Plant.

9. 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.

10. With implementation of the Conditions of Certification listed below, the project will conform 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 the start of construction.

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 The project owner shall notify the CPM of any waste management-related enforcement action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator that the owner contracts with.

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, for review and comment, a waste management plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; 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 The project owner shall have an environmental professional (as defined by American Society for Testing and Materials practice E 1527-93 Standard Practice for Phase I environmental Site Assessments) on site during soil excavation activities. 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, the environmental professional shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner 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 site, existing wetlands and undeveloped upland areas in the Sacramento-San Joaquin River Delta (bay-delta region) support many plant and animal species listed under state and/or federal Endangered Species Acts. Additionally, state and federally listed aquatic species inhabit the region. The bay-delta complex is an important segment of the Pacific Flyway, which provides recreational opportunities for waterfowl sport hunting and other nonconsumptive uses. (Ex. 28, p. 318.)

1. Project Site

The Applicant conducted site-specific biological surveys in accordance with CEQA Guidelines that require surveys to cover a one-mile radius around the plant site and a 1,000-foot buffer on either side of the transmission line, gas and water pipelines, and access road routes. (4/29 RT 13; Ex. 1, p. 5.6-1.)

The closest natural communities near the site are the New York Slough and Browns Island. New York Slough, approximately 400 feet from the site, provides valuable habitat for aquatic life. (Ex. 1, p. 5.6-9.) Sport and commercial fisheries are important enterprises in the bay-delta ecosystem. Changes in environmental conditions require ongoing management of water resources in upstream drainages and within the bay-delta complex. (Ex. 28, pp. 317-318.)

Browns Island is approximately one-half mile from the site and consists primarily of wetlands. (Ex. 1, p. 5.6-2.). On Browns Island, there is one occurrence of a sensitive habitat for coastal brackish marsh vegetation. (*Id.* p. 5.6-9.) This area, known as the Coastal Brackish Marsh, once covered more than 900 square miles around the San Joaquin-Sacramento Delta, but only about 36 square miles remain. (*Ibid.*)

The 12-acre site and 20-acre construction laydown areas are highly disturbed industrial areas surrounded by urban development that does not provide quality habitat for wildlife, although some species survive despite existing conditions. (Ex. 28, p. 318.) The site is characterized by non-native grassland vegetation

consisting of a weedy herbaceous species and very few shrubs. (*Ibid*.) Plant and wildlife species that were observed or are likely to occur at the site are listed in Biological Resources Table 1. (Ex. 7, Table 5.6-2.)

2. Linear Facilities

The linear facilities associated with the project include water supply and discharge lines, a natural gas supply line, and transmission lines. These linear facilities will parallel existing roads and highways through developed areas. The Applicant revised its proposed transmission line and pipeline routes to avoid crossing any riparian habitat or wetland areas.[1]

Since the routes chosen for linear facilities do not traverse habitat with riparian vegetation or wetland areas, the potential for adverse impacts to these ecosystems from project activities has been eliminated. (4/29 RT 17; 26-27; 31-34.)

3. Potential Impacts

a. Noise

Plant and wildlife species tolerant of urban surroundings are likely to inhabit the project site and linear facility routes. Any increases in noise during construction and operation will not cause significant impacts to resident wildlife species since they have adapted to industrial noise. (Ex. 1, p. 5.6-11.)

b. Stack Emissions

Stack emissions will be the greatest on the north side of New York Slough and the Browns Island vicinity where wildlife habitat occurs. (Ex. 28, p. 321.) Testimony submitted by the parties indicates that project emissions will not impact wildlife in the project vicinity. (Ex. 1, p. 5.6-11; Ex. 28, p. 321.) To further assess the impacts of project emissions on vegetation, the Applicant compared ground level and airborne concentrations of NO_2 and SO_2 against U.S. Forest Service (USFS) thresholds for significant impacts to vegetation and ecosystems.

[1] Initially, Applicant proposed alternative transmission line routes 1 (connecting to USS-POSCO), and 10A (connecting to the PG&E switchyard), and water pipeline route 5, that would cross riparian vegetation and protected wetlands. These routes would have impacted sensitive habitat and required Applicant to obtain a Streambed Alternation Agreement (Fish & Game Code section 1603) and a Section 404 permit required by the federal Clean Water Act. Testimony of Applicant's witness Steve Kellogg confirmed that the chosen linear routes do not traverse riparian or wetland habitats. (4/29 RT 16-17; 26-27.)

BIOLOGICAL RESOURCES TABLE 1 (2 PAGES)

Source: Ex. 7, Table 5.6-2

BIOLOGICAL RESOURCES TABLE 1 (2 PAGES)

Source: Ex. 7, Table 5.6-2

The modeling results indicated that native plants and soils in the project vicinity would not be adversely affected by NO_2 or SO_2 emissions. (Ex. 1, p. 5.6-12.)

c. Erosion

Soil erosion related to construction activities may impact aquatic biological resources if allowed to enter local waterways, but potential erosion can be mitigated by applying appropriate site specific measures. Implementation of an approved Erosion Control Plan, as required by Condition will ensure that aquatic biological resources will not be significantly impacted. (Ex. 28, p. 320; 4/29 RT 159.)

d. Cooling Tower Water

Cooling tower blow-down will be returned to the Delta Diablo Sanitation District Facility (DDSD), commingled with other wastewater prior to treatment, and discharged to the New York Slough under DDSD's existing NPDES permit. (Ex. 28, p. 321.) Because approximately 65 percent of the cooling water will be lost to evaporation during project operations, the concentration of constituents in the discharge will be increased. (*Ibid.*) Compliance with the discharge limitations established in the NPDES permit will reduce impacts on aquatic species in the slough to insignificant levels. (*Ibid.*) Applicant provided testimony that the concentration of constituents harmful to aquatic life will be at levels far below the national ambient water quality criteria that are established to protect aquatic resources. (4/29 RT 25-26.)

Cooling tower drift of constituents from the effluent used as cooling water may adversely affect ecological resources. (Ex. 1, p. 5.6-12.) Applicant determined that any cumulative increase in soil concentrations of the total dissolved solids (TDS) that may be contained in cooling water drift is several orders of magnitude lower than the threshold benchmarks for vegetation and sediment biota. (*Ibid.)* The two chemicals with the potential to biomagnify through the food web (mercury and selenium) are predicted at such low concentrations that their biomagnification potential is negligible. (*Ibid.*) Further, TDS in cooling tower drift will be indistinguishable from the natural occurring conditions of high salinity and existing concentrations of TDS in the brackish ecosystems of New York Slough and Browns Island. (*Id.*, p. 5.6-13.) These ecorisk analyses revealed no evidence that adverse impacts to sensitive biological resources are likely to occur as a result of inorganic constituents in cooling tower drift. (*Ibid.*)

e. Bird Collisions

The potential for bird collisions with project turbine stacks (150 feet), the boiler stack (100 feet), or cooling towers (44 feet) may be a significant impact. (Ex. 1, p. 5.6-14.) Documentation of bird mortalities, however, appears to be

associated with relatively tall stacks ranging from 500 to 650 feet. (Ex. 28, p. 320.) Applicant reduced the height of its transmission towers from the initial proposal of 130-150 feet to 75 feet to mitigate visual impacts. (See, VISUAL RESOURCES section.) Staff believes that avian collisions are less likely to occur at lower heights.[2] (4/29 RT 30.) The new transmission lines will parallel or replace existing lines or buildings. As a result, these new segments should not add any substantial collision hazards to existing conditions. (Ex. 1, p. 5.6-14.) The potential for bird electrocution is minimal since raptors and other birds likely to use transmission towers for perching have wing spans smaller that the distance between conductors. (Ex. 28, p. 320; Ex. 1, p. 5.6-15.) To mitigate the potential for avian mortalities, however, Staff proposed a 3-year monitoring program to document evidence of collisions and/or electrocutions and to establish a mortality reduction plan, if necessary. (4/29 RT 25; Condition BIO-6.)

COMMISSION DISCUSSION

There were no controverted issues raised by the parties or members of the public regarding potential impacts to biological resources. 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 demonstrates that the losses will not be significant. With respect to cumulative impacts, the evidence indicates that any biological resource impacts associated with existing and foreseeable industrial development in the City of Pittsburg will not be significantly increased by the construction and operation of PDEF.

FINDINGS AND CONCLUSIONS

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

1. Plant and wildlife species tolerant of urban surroundings are likely to inhabit the project site and linear facility routes.

2. Wildlife species adapted to urban surroundings will not be impacted by noise from construction and operation of PDEF.

[2] A Staff report entitled "Avian Collision and Electrocution" (1995) was provided as support for this theory. (See, Staff Brief, May 11, 1999.)

3. Criteria and non-criteria air pollutants from project emissions will not cause significant adverse impacts to wildlife or vegetation in the project vicinity.

4. Implementation of an approved Erosion Control Plan, as required by Condition SOIL & WATER-2, will ensure that aquatic biological resources will not be significantly impacted by possible erosion during construction activities.

5. The concentration of constituents contained in the discharge of cooling tower blow-down into New York Slough will be at levels far below the national ambient water quality criteria that are established to protect aquatic resources.

6. 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.

7. 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.

8. Since Applicant has chosen routes for its linear facilities that do not traverse habitat with riparian vegetation or wetland areas, the potential for adverse impacts to these ecosystems from project activities has been eliminated.

9. The potential for bird mortality due to collisions with PDEF stacks or perching on transmission towers is minimal; however, Applicant will implement a 3-year monitoring program to document evidence of collisions and/or electrocutions and to establish a mortality reduction plan, if necessary.

10. The measures specified in the Conditions of Certification listed below will adequately mitigate the potential adverse effects of PDEF on biological resources to a level of insignificance.

11. With implementation of the mitigation measures specified below, PDEF 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.

We therefore conclude that PDEF will not result in any significant adverse impacts to biological resources.

CONDITIONS OF CERTIFICATION

BIO-1 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.

Protocol: The designated biologist must meet the following minimum qualifications:

1. a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field,

2. three years of experience in field biology or current certification of a nationally recognized biological society, such as the Ecological Society of America or The Wildlife Society,

3. one year of field experience with resources found in or near the project area, and

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

BIO-2 The CPM approved designated biologist shall perform the following duties:

1. advise the project owner's supervising construction or operations engineer on the implementation of the biological resource conditions of certification,

2. supervise or conduct mitigation, monitoring, and other biological resource compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as, wetlands and special status species, and

3. 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's supervising construction 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 assure that potential significant biological resource impacts are avoided.

The designated biologist shall:

1. tell the project owner and the supervising construction and operating engineer when to resume construction, and

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

BIO-4 The project owner shall develop and implement a Worker Environmental Awareness Program in which each of its own employees, as well as 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, are informed about biological resource sensitivities associated with the project.

Protocol: The Worker Environmental Awareness Program:

a) 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;

b) must discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

c) must present the reasons for protecting these resources;

d) must present the meaning of various temporary and permanent habitat protection measures;

e) must identify who to contact if there are further comments and questions about the material discussed in the program; and,

f) shall inform workers of the potential biological resource impact risk associated with all construction and operational activities as is appropriate and emphasize protection of sensitive resources.

The specific program can be administered by a competent individual(s) acceptable to the designated biologist.

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program material. Each statement shall also be signed by the person administering the Worker Environmental Awareness Program.

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 6 months after the start of commercial operation. Signed statements for active operational personnel shall be kept on file by the project owner for the duration of their employment and for six months after their termination.

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 Worker Environmental Awareness Program and all supporting written materials prepared by the designated biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date.

BIO-5 The project owner shall submit to the CPM for review and approval a copy of the Biological Resources Mitigation Implementation and Monitoring Plan for this project.

Protocol: The Biological Resources Mitigation Implementation and Monitoring Plan shall:

- identify all sensitive biological resources to be impacted and avoided by project construction and operation;
- identify all mitigation, monitoring and compliance conditions included in the Commission's Final Decision;
- 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.

- design new 115 kV transmission lines to reduce the risk of electrocution for large migratory birds;

- indicate duration for each type of monitoring established for mitigation actions and include a description of the monitoring methodologies and frequency;

- describe performance standards to be used to help decide if/when proposed mitigation is or is not successful; and

- identify all remedial measures to be implemented if performance standards are not met.

- reduce potential bird collisions with boiler stacks, cooling towers, turbine stacks and other structures by reducing exterior lighting on all structures to the minimum allowing for appropriate safety and security standards including aviation safety, while all other required exterior lighting on structures will be shielded to direct light downward;

- reduce soil erosion during construction and operation by applying measures identified in the proposed 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;

- reduce the potential for animals to fall into trenches or other excavated sites during times when these trenches or sites are left unattended by covering them or providing escape ramps at intervals that will maximize their availability and potential use at the end of the construction day.

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 Biological Resources Mitigation Implementation and Monitoring Plan for this project, and the CPM will determine the plans 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 Biological Resource Mitigation Implementation and Monitoring Plan.

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 Biological Resource Mitigation Implementation and Monitoring Plan 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.

BIO-6 Site disturbance and project construction shall not commence until the project owner has developed a protocol for inclusion in a Biological Resources Mitigation Implementation and Monitoring Plan to monitor for bird mortality due to collision with the stacks on the project site as well as the transmission lines. Mortalities associated with transmission lines shall, to the extent possible, be identified as to whether the cause is electrocution or collision with towers or conductors. The protocol shall include a thorough description of methods for collecting and recording this data.

As part of this protocol, a report describing the results after each year of monitoring shall be submitted to the CPM on the next closest annual report date established for the project in this decision. If the CPM determines that the report content or format requires changes, the project owner shall modify the report based on the CPM's comments.

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 CPM will review the Biological Resources Mitigation Implementation and Monitoring Plan submitted under Condition of Certification.

BIO-7 If the Biological Resources Mitigation Implementation and Monitoring Plan 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.

The CPM will review each monitoring report and, as deemed necessary, ask the project owner to modify and/or clarify the report content and/or format.

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

B. SOIL AND WATER RESOURCES

This section 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, degrade water quality, and increase the likelihood of flooding. The analysis also considers the potential cumulative impacts to water quality in the project vicinity.

SUMMARY OF EVIDENCE

1. Soils

The site is located on low-lying alluvial fan and terrace deposits on the southern side of New York Slough, (Ex. 28, p. 337.) Elevations range from 9-12 feet above mean sea level. (*Ibid.*) The topography and soils found at the site and laydown area, as well as along the linear facility routes, have been substantially altered by previous excavation activities. (*Ibid.)* Some arsenic contaminated soils are found onsite and will be managed in consultation with the Department of Toxic Substances Control. (See, WASTE MANAGEMENT section of this Decision.)

a. Erosion Control/Stormwater Management

Project construction will involve significant earth-moving activities. Removal of the vegetative cover and alteration of soil structure make soil particles, including the arsenic contaminated soils, vulnerable to erosion by wind or water. For purposes of site elevation, Applicant will import a significant amount of fill which, if left unprotected, is highly susceptible to erosion. Piles of soil left along the areas of pipeline construction are also vulnerable to erosion. Grading activities may increase the potential for water erosion by redirecting stormwater runoff to unprotected offsite areas. (Ex. 28, pp. 344-345.) Impervious surfaces such as concrete pads associated with the project may also cause increased runoff. (*Ibid.*)

Applicant submitted a draft Erosion Control/Stormwater Management Plan to control erosion and sedimentation.[1] (Ex. 5) Staff is satisfied that the plan's "best management practices" will mitigate potential impacts from erosion and runoff associated with project construction and operation. (4/29 RT 133, 156.) Measures to control erosion and sedimentation include: straw bale dikes, straw check dams, silt fences, stormwater detention basins, mulching and seeding, routing runoff away from disturbed areas, and storm drain inlet protection measures. (Ex. 5; Ex. 28, p. 348.)

[1] Pursuant to the federal Clean Water Act (33 USC, § 1257 et seq.), the State Water Resources Control Board (SWRCB) has adopted two general National Pollutant Discharge Elimination System (NPDES) Permits that require developers to prepare and implement Storm Water Pollution Prevention Plans (SWPPP) to reduce sediment, oil, and other contaminants in stormwater discharge. (NPDES General Permits Nos. CAS000001 and CAS000002.)

Stormwater runoff of contaminated soils would be controlled by laying gravel on roadways and around construction areas; compaction of access road surfaces; use of sediment basis or filtration to remove sediment from water; uses of covered or indoor storage for hazardous materials; covered dumpsters; fueling vehicles offsite; and use of designated bermed areas for equipment cleaning. (Ex. 5; Ex. 28, p. 348.)

Control of non-stormwater related pollution discharges would be accomplished by using designated waste storage areas for non-hazardous wastes. Spill prevention measures for delivery and storage of hazardous materials are required by law. (Ex. 5; Ex. 28, p. 349; See, HAZARDOUS MATERIALS MANAGEMENT section of this Decision.)

Wind erosion will be mitigated by a dust control plan approved by the Bay Area Air Quality Management District, including periodic watering when necessary to control dust on unpaved areas. (Ex. 28, p. 349; See, AIR QUALITY section of this Decision.)

b. Flooding

PDEF will be constructed within the 100-year and 500-year floodplains. According to the Federal Emergency Management Agency, the 100-year floodplain is 7 feet above mean sea level. (Ex. 1, p. 5.5-8.) Applicant will raise the base elevation of the site to 12 feet above mean sea level. Both Applicant and Staff agree that elevating the site above the 100-year flood plain would not cause significant impacts to the surrounding floodplain. (4/29 105, 133.)

2. Hydrology

New York Slough, north of the project site, is a three-mile long natural channel connected to the San Joaquin River on the east and Suisun Bay on the west. (Ex. 28, p. 337.) The slough is tidally influenced and estimated to carry one-third to one-half of the flow of the San Joaquin River. (*Ibid.*) Other surface water bodies in the project vicinity include Kirker Creek, a channelized, ephemeral stream located north of the site that discharges into Dowest Slough, which discharges into New York Slough. (*Id.*, pp. 337-338.)

Groundwater is found in both a shallow aquifer at 10 feet below the surface and a deeper aquifer at 90-140 feet below the surface. (Ex. 28, p. 338.) Contamination is present in both aquifers beneath the site; however, the source of contamination originates offsite. (*Ibid.,* 4/49 RT 158.) Therefore, the Department of Toxic Substances of Control will not require Applicant to detoxify the aquifers. (*Ibid.*)

a. Water Availability

The City of Pittsburg receives 80 percent of its water supply from the Contra Costa Water District via the 48-mile Contra Costa Canal. (Ex. 28, p. 338.) Pittsburg's average water demand is about 10,300 acre feet per year. (*Ibid.*) About 8,300 acre-feet of water is received from the Contra Costa Canal and the remaining 2,000 acre-feet of water is

supplied by two groundwater wells that are located southwest of the project site. (*Id.,* p. 239.)

The city's water treatment plant has the capacity to provide 32 million gallons per day (mgd) of potable water. (4/29 RT 105.) Current average demand is between 15-17 mgd. (*Ibid.*)

The Delta Diablo Sanitation District (DDSD) treats wastewater from the Cities of Pittsburg and Antioch. (Ex. 28, p. 339.) DDSD has an average daily dry weather flow capacity of 16.5 mgd. (*Ibid.*) Currently, DDSD treats and discharges approximately 13.2 mgd to New York Slough. (4/28 RT 165.) All of this volume receives secondary treatment that removes settable solids and organics; some of the flow also receives tertiary treatment that involves additional filtration and possibly chlorination to completely remove organic material and suspended solids.[2] (Ex. 28, p. 339.)

b. Project Water Supply

Water for PDEF will be supplied by the City of Pittsburg and DDSD. Potable water from the city will be used for firewater, drinking water, and sanitary facilities. Reclaimed water (effluent) from DDSD will be used for plant operations. (Ex. 1 p. 5.5-7.) PDEF would use potable water in the event that effluent were temporarily unavailable. (*Ibid*.)

The project expects to use approximately 3.4-3.7 mgd of tertiary treated effluent for cooling tower water[3] and other project needs, representing 28 percent of the DDSD's current discharge to New York Slough. (Ex. 1, p. 5.5-7.) DDSD currently has no uses for the 13.2 mgd of effluent discharged to New York Slough. According to Applicant, therefore, PDEF's use of effluent would not affect any existing or planned uses of the DDSD effluent. (Ex. 1, p. 5.5-7.) Staff concurred that PDEF's use of effluent is a beneficial use.[4] (4/29 RT 150.)

Staff sponsored the testimony of Greg Baatrup, technical services manager for DDSD, who testified that DDSD has sufficient capacity to meet project demand. (4/29 RT 165,

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[2] Tertiary treatment does not remove metals, chloride compounds, or nutrients such as nitrogen or phosphorus. (Ex. 28, p. 339.)

[3] State Water Resources Control Board policy directs energy facilities to use recycled wastewater for cooling towers and to discharge cooling tower wastewater, in order of priority, to oceans, ocean water, or brackish water, with inland waters being last. [Use and Control of Inland Waters Used for Powerplant Cooling (adopted June 19, 1976, Resolution 75-58); See also, Water Code, §§ 13550 et seq.] New York Slough is characterized by brackish waters. See, BIOLOGICAL RESOURCES section of this Decision.

[4] 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. [4/29 RT 134, 145-146; See, Cal. Code of Regs., tit. 22, §§ 60301.100 et seq. (proposed regulations); specifically, § 60306.]

169, 173.) Mr. Baatrup also testified that DDSD is seeking expansion of its wastewater treatment capacity to accommodate growth in the community.[5] (4/29 RT 165, 169.)

The City of Antioch expressed concern that PDEF's emergency plan to use potable water would impact Antioch's accessibility to potable water.[6] (4/29 RT 179-181.) Dr. William Faisst testified, on behalf of Antioch, that PDEF's emergency use of potable water has the potential to affect water availability in the Pittsburg-Antioch area during drought conditions. (4/29 RT 180.) Dr. Faisst also testified that Antioch supports Staff's proposed Condition SOIL & WATER-5 to limit the duration of PDEF's reliance on potable water, but he is concerned that enforcing those limits would not be practicable.[7] (*Id.*, p. 181.)

On cross-examination by Staff, Dr. Faisst conceded that DDSD has a well-run facility, that he had no reason to expect that it would fail, and that waste treatment plant outages are unusual and typically for short durations. (4/29 RT 187-188.) Dr Faisst further responded that 40-100 percent (depending on the season) of Antioch's water supply comes from contracts with the Contra Costa Water District, and the remainder is from ground pumping and other sources. (*Id.,* pp. 188-190.) Dr. Faisst did not expect Antioch's contractual water rights to become subordinate to those of PDEF. (*Id*., p. 191.)

As rebuttal evidence, Mr. Baatrup testified that DDSD has never experienced an outage since it began operations in the early 1980s. (4/29 RT 167.)

c. Industrial Discharge

Wastewater outflows from PDEF will be returned to DDSD through a dedicated pipeline. These outflows include cooling tower blowdown, evaporative cooler blowdown, HRSG blowdown, demineralizer water backwash and neutralization facility effluent. (Ex. 28, p. 341.) This return flow will average about 0.9 mgd. (*Ibid.*) DDSD has adequate capacity to accommodate PDEF's return flow, which will be discharged to the New York Slough outfall. (*Ibid*.) Since the return flow would have previously been treated to tertiary standards, no additional treatment would be necessary before discharge to the outfall. (4/29 RT 164.)

DDSD approved PDEF's application for an industrial discharge permit, which is required to ensure that return flows from the project do not disrupt DDSD's processes or violate

[5] DDSD plans to expand its wastewater treatment capacity to 25.7 mgd by the year 2008. (Ex. 28, p. 339.)

[6] If PDEF needs potable water to run the facility in an emergency, it would require 3.4 to 3.7 mgd, which is the same as the effluent flow it would normally receive from DDSD . (4/29 RT 105, 118.)

[7] Under Condition SOIL&WATER-5, PDEF may only use backup water if effluent delivery is interrupted. PDEF must notify the Commission when it uses a backup water supply for more than three days, and must obtain Commission approval to use backup water more than two weeks.

its NDPES permit. (Ex. 27; Ex. 28, p. 341.) Due to evaporation during PDEF operations, the concentration of metals and inorganics will increase in the return flow. The discharge water quality is shown in SOIL and WATER RESOURCES Table 1 below. The discharge limitations are shown in SOIL and WATER RESOURCES Table 2. (Both tables are replicated from Staff Testimony: Ex. 28 at pp. 343-344.)

SOIL & WATER RESOURCES Table 1
Source and Discharge Water Quality

Constituents	Inflow Concentration (mg/L)	Outflow Concentration (mg/L)
Aluminum	<0.1	<0.3
Antimony	<0.1	<0.3
Arsenic	<0.004	0.012
Barium	0.012	0.036
Bicarbonate	230	690
Beryllium	<0.01	<0.03
Cadmium	<0.01	<0.03
Calcium	43	129
Carbonate	2	6
Chloride	228	684
Chromium	<0.008	<0.024
Copper	<0.007	<0.021
Fluoride	0.7	2.1
Hydrocarbons	<3	<9
Iron	0.29	0.87
Lead	<0.022	<0.066
Manganese	0.135	0.405
Magnesium	26	78
Mercury	<0.0002	<0.0006
Nitrate (as NO3)	<0.1	<0.3
Ph	7.0	9.0
Potassium	15	45
Selenium	<0.007	<0.021
Silica	0.026	0.078
Silver	<0.005	<0.015
Sodium	195	585
Sulfate	195	585
Total Alkalinity (as CaCO3)	217	651
Total Dissolved Solids	850	2550
Total Hardness (as CaCO3)	294	882
Total Suspended Solids	8	24
Turbidity	0.5 NTU	1.5 NTU
Zinc	0.0125	0.0375
Biochemical Oxygen Demand	10	30
Chemical Oxygen Demand	57	171

DDSD has established pretreatment standards for such discharges. As seen below, the estimated PDEF discharge meets all applicable pretreatment standards required by DDSD. The values shown in the table are based upon three cycles of concentration through the PDEF cooling process. (Ex. 28, p. 344.)

SOIL & WATER RESOURCES Table 2
Discharge Limitations

Constituents	Estimated Discharge	Pretreatment Limits
Arsenic	0.012	0.53
Cadmium	<0.03	0.10
Chromium	<0.024	0.50
Copper	<0.021	0.50
Iron	0.87	15.00
Lead	<0.066	0.50
Mercury	<0.0006	0.01
Selenium	<0.021	2.0
Silver	<0.015	0.20
Zinc	0.0375	1.0

Sources: PDEF (1998k); Patch (1998d)

There was no evidence presented to challenge the acceptability of these concentration levels, which are consistent with industrial discharge standards established by the NPDES permit for DDSD. The City of Antioch raised a concern, however, about potential cumulative impacts on DDSD's capacity to meet the effluent requirements of both PDEF and the proposed Delta Energy Center (DEC), as well as impacts on New York Slough from the combined outfall discharges of both projects. (4/28 RT 177-179.)

3. Cumulative Impacts

Staff performed a cumulative impacts analysis to determine whether PDEF in combination with DEC would contribute to significant cumulative impacts on water quality. Staff witness Joe O'Hagan also prepared a series of charts to compare the effluent demand and outflow of both projects. (4/29 RT 141-144; Ex. 37; replicated here on the following pages.)

As stated above, PDEF will utilize about 3.4 mgd of tertiary treated effluent and return about 0.9 mgd. DEC will utilize about 5.3 mgd of tertiary treated effluent and return about 2.1 mgd a day. (Ex. 37, Charts 2 & 3.) Mr. Baatrup testified that DDSD has the present capacity to supply effluent to both projects. (4/29 RT 169.)

Ex. 37 (4 pages)

Source: Ex. 37

Source: Ex. 37

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DEC will use either the DDSD outfall or an existing Dow chemical outfall. (See, Ex. 37, map of discharge locations.) Mr. O'Hagan testified that neither PDEF nor DEC would cause an increase in the total mass pollutant discharge to New York Slough, compared to the existing DDSD discharge. (5/26 RT 13 et seq.; 5/18 Staff's Supplemental Testimony, p. 1; Ex 37, Chart 4.) Although there will be an increase in the concentration levels, these levels will remain within the existing NPDES Permit limitations for DDSD. (*Ibid.*, see Table 2 above.)

Staff's analysis focused on whether the increased concentration of discharge from DDSD 's outfall would be sufficiently disbursed prior to reaching the City of Antioch's water intake. (5/18 Supp. Test., pp. 1-2.) As part of its NPDES permit application, DEC conducted a sophisticated dilution and dispersion modeling analysis based on U.S. EPA modeling protocol.[8] (*Id.*, p. 2.) Staff found that DEC's modeling analysis accurately characterizes the likely dilution of the discharge. (5/26 RT 16-18) Therefore, Staff believes that the estimated initial dilution and the potential level of additional dilution in the discharge concentrations will reach background levels prior to reaching the City of Antioch's water supply intake.

COMMISSION DISCUSSION

The Committee believes that the two issues raised by the City of Antioch (whether emergency use of potable water would impact Antioch's water supply and whether the combined discharge from both PDEF and DEC would cause cumulative impacts to Antioch's water supply intake) were resolved by credible evidence.

DDSD has more than sufficient capacity to handle PDEF's effluent requirements. We find that there is a high degree of reliability in the operations of DDSD's water treatment facility and the likelihood of an interruption in the delivery of effluent to PDEF is minimal to nonexistent. (See, Baatrup, 4/29 RT 167.) Finally, in the event that PDEF would need potable water for project operations, the City of Pittsburg has ample capacity to provide the water without impact to its normal water supply services.

Staff's thorough and sophisticated cumulative impacts analysis shows that the dilution and dispersal of concentrated discharge from both PDEF and DEC would likely reach background levels at Antioch's water intake. Indeed, Dr. Faisst testified on behalf of Antioch, that having reviewed DEC's dilution analysis for its NPDES permit application, he was persuaded that there would not be significant cumulative impacts to the Antioch's water supply. (4/29 RT 178-179.)

The Commission is satisfied that the "best management practices" contained in Applicant's preliminary Erosion Control/Stormwater Management Plan will mitigate potential impacts to soils and water resources to insignificant levels.

[8] U.S. EPA model UDKHDEN.

The Commission is also persuaded that Applicant's use of tertiary treated reclaimed water is consistent with state law and will serve a beneficial purpose.

FINDINGS AND CONCLUSIONS

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

1 Project construction will involve significant earth-moving activities that leave soil particles vulnerable to erosion by wind or water.

2. PDEF's draft Erosion Control/Stormwater Management Plan includes "best management practices" that will mitigate potential impacts from erosion and runoff associated with project construction and operation.

3. Elevating the site to 12 mean sea level, which is above the 100-year flood plain, will not cause significant impacts to the surrounding floodplain.

4. The Cities of Pittsburg and Antioch receive the majority of their water supplies from the Contra Costa Water District.

5. The City of Pittsburg's water treatment plant has the capacity to provide 32 million gallons per day (mgd) of potable water. Current average demand is between 15-17 million gallons per day (mgd).

6. The Delta Diablo Sanitation District (DDSD), which treats wastewater from the Cities of Pittsburg and Antioch, has an average daily dry weather flow capacity of 16.5 mgd. DDSD treats and discharges approximately 13.2 mgd to New York Slough.

7. PDEF will use approximately 3.4-3.7 mgd of tertiary-treated wastewater (effluent) for cooling tower water and other project needs, representing 28 percent of the DDSD's current discharge to New York Slough.

8. DDSD has sufficient capacity to provide effluent to PDEF and to Delta Energy Center (DEC).

9. PDEF will use potable water from the City of Pittsburg in the event that effluent is temporarily unavailable.

10. The City of Pittsburg has ample capacity to supply potable water to PDEF for project operations on a temporary basis without impact to its normal water supply services.

11. DDSD approved PDEF's application for an industrial discharge permit, which ensures that return flows from the project do not disrupt DDSD's processes or violate its NDPES permit.

12. Any potential adverse cumulative impacts to the City of Antioch's water supply resulting from the combined discharge of effluent from PDEF and DEC into New York Slough would be insignificant or nonexistent.

13. With implementation of the Conditions of Certification below, the construction and operation of PDEF will not result in significant adverse impacts to soil and water resources.

14. With implementation of the Conditions of Certification below, 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 two weeks 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 stormwater management plan for City of Pittsburg Community Development Department 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. The plan shall reflect that all permanent on-site drainage facilities are sized to accommodate the 100 year, 24-hour storm and identify any off-site measures needed to accommodate this discharge.

Verification: The final erosion control plan shall be submitted to the City of Pittsburg Community Development Department and the Energy Commission CPM for approval 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: Two weeks prior to the start of construction, the project owner will submit to the Energy Commission CPM a copy of the Storm Water Pollution Prevention Plan.

SOIL&WATER-4: The project owner shall provide a copy of the approved pretreatment permit from the Delta Diablo Sanitation District to staff and notify the Energy Commission CPM of any changes to the permit.

Verification: Within 30 days of receiving the Pretreatment Permit from Delta-Diablo Sanitation District, the project owner shall submit a copy to the Energy Commission CPM. The project owner shall notify the Energy Commission CPM in witting of any proposed changes to the permit, either initiated by the project owner or by the district.

SOIL&WATER-5: The project owner shall operate the project using only tertiary treated effluent for cooling and steam cycle processes. Backup water from the City of Pittsburg should only be used for these processes when there is an interruption in the delivery of tertiary treated effluent. Operation of the facility on the backup water supply longer than three consecutive days requires notification of the Energy Commission CPM. Operation of the facility on backup water shall not continue for more than two weeks without Energy Commission approval.

Verification: The project owner shall notify the Energy Commission CPM by phone and in writing if the backup water supply is used for more than three consecutive days. Notification should explain the cause of the interruption and the anticipated time when tertiary treated effluent is again available.

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 PDEF site where cultural resources may be disturbed by project construction and operation. In particular, 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 PDEF site or along the linear facilities. Three aspects of cultural resources were addressed in their research: prehistoric archaeologic resources, historic archaeologic resources, and enthnographic resources. (Ex 29. p. 81.)

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. 29, p. 81; Ex. 1, pp. 5.7-4 et seq.) 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. 29, p. 82.) 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. 29, p. 82.)

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.[1] (Ex. 1. P. 5.7-9.)

Applicant initially conducted a records search to identify cultural resources within a quarter-mile radius around the plant site and linear facilities.[2] (Ex. 1, pp. 5.7-9 et seq.) The records identified several historic and prehistoric resources within the quarter-mile area but did not reveal the existence of archaeological sites or built environment features within the Area of Potential Effect (APE). (*Id*., p. 5.7-11; Ex. 7, Table 5.7-1.) The APE is considered the critical impact area within 100 feet around the plant site and laydown areas, and within 100 feet from the centerlines of the linear facilities. (Ex 29, pp. 88-89.)

Applicant subsequently conducted field surveys within the APE and found no surface evidence of cultural resources.[3] (Ex. 1, pp. 5.7-13 et seq.; Ex. 29, p. 88.)

2. Potential Impacts

The power plant site and laydown areas are located on fill materials in a heavily disturbed area within an existing industrialized zone. Staff agrees with Applicant that site clearance and excavation are not expected to impact any known cultural resources. (Ex. 29, p. 96.) The potential for impact to cultural resources will depend on the extent of surface area that is disturbed; however, since the site has been dedicated to industrial uses for over a century,[4] the possibility of disturbing cultural resources is greatly diminished. (*Ibid*.)

The ground surface along the transmission line corridors is highly disturbed due to extensive industrial, commercial, and residential development. No evidence of cultural resources was observed by Applicant along the transmission routes. (Ex. 1, p. 5.7-16.)

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[1] Condition CUL-4 provides for Native American monitors, if necessary. (4/28 RT 127.)

[2] The records search was conducted at the Northwest Information Center of the California Historical Resources Information System (CHRIS). (Ex. 1, p. 5.7-9.) The search included a review within 0.25 mile of project facilities of all recorded sites, surveys, historical listings, and historical maps. (*Ibid.*)

[3] Applicant's surveyors walked in transects of approximately 10-20 meters apart crisscrossing the terrain to identify any visible resources and to examine exposed soils. (Ex. 1, p. 5.7-14; 4/28 RT 125.)

[4] Steel production has been a predominant industry in the Pittsburg area since the 1920s. Staff noted that industrial activities were successful in the area due to the proximity of the New York Slough, which provides an access route to the river delta and the Bay Area. (Ex. 29, p. 88.)

The underground portion of the transmission line along the 8th Street corridor will be in the vicinity of the New York Landing Historical District[5] but the line will not directly or indirectly impact any built feature older than 45 years. (Ex. 29, p. 96.) According to Staff, however, the proximity of the Historical District and recorded evidence of prehistoric habitation in the Pittsburg area indicate the potential for discovering cultural resources when subsurface soils are exposed during auguring for power pole foundations. (Ex. 29, p. 96.)

The water pipeline will be built adjacent to or underneath existing paved roads. No cultural resources were observed along this route. (Ex. 29, p. 97.) The natural gas pipeline will be buried in a trench 5 feet deep and 2 feet wide along a highly disturbed corridor. Nevertheless, Staff believes the potential for impacts to previously unknown cultural resources cannot be evaluated until the subsurface is exposed by trenching. (*Ibid*.)

3. Mitigation

The records indicate that there are numerous known archaeological sites, features, or objects as well as the presence of historic buildings and objects of historic interest within the 0.25-mile radius of the PDEF site.[6] (Ex. 29, p. 95.) The presence of these cultural resources in proximity to the project APE indicates a potential for historic and prehistoric cultural resources to be disturbed during project construction. (*Ibid.*)

To prevent adverse impacts to known or unknown resources, Applicant recommended a six-point cultural resource-monitoring program that would be implemented for areas of high sensitivity. (Ex. 1, pp. 5.7-25 and 5.7-26.) The steps listed below are incorporated and explained more fully in the Conditions of Certification:

- Avoidance
- Physical Demarcation and Protection
- Crew Education
- Archaeological Monitoring
- Native American Monitoring
- Formal Compliance with CEQA APPENDIX K/Section 106

[5] The Historical District is not located within the APE. It was established by City of Pittsburg Ordinance 81-815, and is eligible for listing under the National Historical Preservation Act. (Ex. 1, p. 5.7-13.) The District includes structures of local and state historical interest such as the St. Peter the Martyr Church and the Black Diamond School. (Ex. 29, p. 91.)

[6] One previously unknown site, adjacent to the APE, was discovered and recorded by Applicant during field surveys. (Ex. 29, p. 90.) This resource site is identified as CA-CCO-715H, and consists of remnant foundations of an abandoned power plant and a calcineing plant complex. (*Ibid.*) Although Staff's witness did not believe this site would be eligible for listing, it is referenced in Condition CUL-4 as a sensitive resource. (4/28 RT 125-126.)

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. 29, p. 100.) Applicant will develop and implement a Cultural Resource Monitoring and Mitigation Plan. If cultural resources are encountered during construction activities, the mitigation measures contained in the Conditions of Certification will ensure that such resources are protected.

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 are 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.
5. The mitigation measures contained in the Conditions of Certification below will ensure that adverse impacts to cultural resources do not occur as a result of project activities.
6. With implementation of the Conditions of Certification below, PDEF 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 construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall provide the California Energy Commission (Commission) Compliance Project Manager (CPM) with the name(s) and resume(s) for its designated cultural resource specialist and any other team members who would be assisting the specialist in project monitoring and mitigation.

<u>Protocol:</u> 1) The resume 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 Commission staff expects that these minimum qualifications would include the following: a graduate degree in anthropology, archaeology, California history, cultural resource management, or other comparable fields; at least three years of archaeological resource mitigation and field experience in California; and at least one year's experience in each of the following areas: leading archaeological resource field surveys; leading site and artifact mapping, recording, and recovery operations; marshalling and use of equipment necessary for cultural resource recovery and testing; preparing recovered materials for analysis and identification; determining the need for appropriate sampling and/or testing in the field and in the lab; directing the analyses of mapped and recovered artifacts; completing the identification and inventory of recovered cultural resource materials; and the preparation of appropriate reports to be filed with the receiving curation repository, the SHPO, all appropriate regional archaeological information center(s), and the CPM.

2) The resume for the designated cultural resource specialist 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.

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 on the project, the project owner shall submit the names and resumes for its designated cultural resource specialist and the specialist's team members, to the CPM for review and written approval.

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. 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.

CUL-2 Project construction shall not begin until the designated cultural resources specialist approved by the Commission CPM is available to be on site. The designated cultural resources specialist shall be responsible for the implementation all the Conditions of Certification and for using qualified personnel to assist him or her in project-related activities. The designated specialist, with assistance from qualified team members as needed, shall conduct the following activities:

- any final pre-construction surveys, flagging of areas to be avoided, and identification of areas where shovel testing, test pits, or backhoe trenching need to be done;

- preparation and implementation of the Cultural Resource Monitoring and Mitigation Plan;

- preparation and presentation of the pre-construction employee awareness training program;

- maintenance of a daily log of cultural resource monitoring and mitigation activities and preparation of a summary of these activities to be included in the weekly construction status report filed with the CPM;

- direction and implementation of monitoring and mitigation procedures, as needed in sensitive resource areas, during any construction activities associated with all aspects of the project;

- implementation of measures to map, record, sample, and collect sensitive and diagnostic cultural resources;

- preparation and analyses of all data and cultural materials recovered during project monitoring and mitigation;

- identification and inventory of recovered cultural resources;

- preparation of recovered cultural resources for curation in a qualified public repository;

- delivery of recovered cultural materials to the curation institution; and

- preparation of the preliminary and final cultural resource reports to be filed with the receiving curation repository, appropriate regional information center(s), the SHPO, and the CPM.

Verification: At least 10 days prior to the start of construction, the project owner shall confirm to the CPM that the approved designated cultural resource specialist is available and prepared to implement the cultural resource Conditions of Certification at the start of construction.

CUL-3 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 post mile markers (including “tic marks” for five tenths-of-a-mile), final center lines and right-of-way boundaries, and 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 (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 designated cultural resource specialist and the CPM with final drawings and site layouts for all project facilities 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 as they are provided to the specialist.

CUL-4 Prior to the start of project construction, the designated cultural resources specialist shall prepare and submit to the CPM for review and written approval, a draft Cultural Resource Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive cultural resources. After the project owner receives written CPM approval of the plan, the project owner shall make the designated cultural resource specialist and designated cultural resource team available to implement the Monitoring and Mitigation Plan, as needed throughout project construction.

Protocol: 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. A discussion of the mitigation team leadership and organizational structure, and the inter-relationship of team roles and responsibilities associated with completion of the tasks identified in (b), above.

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 a schedule for the monitor(s) to be present. If the designated specialist determines that the likelihood of encountering cultural resources in certain areas is slight, the specialist may discontinue monitoring in that location.

g. A description of a set of reporting procedures, prepared in concert with the project owner, to be used by all project personnel to notify the designated cultural resource specialist of any unexpected finds of cultural resources during construction-related activities.

h. A description of the work curtailment procedures, prepared in concert with the project owner, to be followed if cultural resources are unexpectedly discovered during project construction.

i. A discussion of the project-specific mitigation measure that the designated cultural resource specialist shall be present to monitor construction-related grading, excavation, trenching, and/or augering that might affect known site CA-CCO-715H. The monitoring shall extend to all areas where there is no imported fill present or where construction activity will extend below the depth of any known fill.

j. A discussion of the project-specific mitigation measure that the designated cultural resource specialist shall ensure that the excavation spoils and exposed sidewalls of the trenches for the reclaimed water pipeline and the fuel gas pipeline will be monitored intermittently for evidence of sub-surface cultural resources.

k. 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.

l. 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.

m. 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 45 days prior to the start of construction on the project, the project owner shall provide the draft Cultural Resources Monitoring and Mitigation Plan prepared by the designated cultural resource specialist, to the CPM for review and written approval. If the CPM does not approve the draft plan, the project owner, the designated cultural resources specialist, and the CPM shall meet to discuss comments and work out necessary changes.

CUL-5 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.

Protocol: The training program will 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 reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during project activities. The training program will be presented by the designated cultural resource specialist and may be combined with other training programs prepared for biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least 45 days prior to the start of construction on the project, the project owner shall submit to the CPM (or designee) for review, comment, 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 CPM shall provide the project owner with written approval or disapproval of the employee training program, the set of reporting procedures, and the work curtailment procedures. If the CPM does not approve the draft employee training program, the

project owner, the designated cultural resources specialist, and the CPM shall meet to discuss comments and work out necessary changes.

CUL-6 Prior to the start of construction and throughout the project construction period as needed for all new employees, the project owner and the designated cultural resource specialist shall provide the CPM-approved training to all project managers, construction supervisors, and workers. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance.

Verification: Prior to the start of construction and throughout the project construction period as needed for all new employees, the project owner and the designated cultural resources specialist shall present the CPM-approved training program on the potential for project impacts to sensitive cultural resources. The training shall include a set of reporting procedures for cultural resources encountered during project activities. The project owner shall provide documentation to the CPM that the employee training and the set of procedures have been provided to all project managers, construction supervisors, and all workers.

CUL-7 The designated cultural resource specialist shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered during project-related grading, augering, excavation and/or trenching. The halting or redirection of construction shall remain in effect until the designated cultural resources specialist has notified the CPM of the find and the work stoppage, and until any necessary data recovery and mitigation has been completed. After construction is halted or redirected, the designated cultural resources specialist shall act in accordance with the following procedures:

- The designated cultural resources specialist, representatives of 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 necessary and required data recovery and mitigation shall be completed as expeditiously as possible after discovery of any previously unknown cultural resources, unless additional time is agreed to by all parties.

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 resource

specialist has the authority to halt or re direct construction activities in the vicinity of a cultural resources find.

CUL-8 Throughout the project construction period, the project owner shall provide the designated cultural resource specialist and the CPM with a current schedule of anticipated monthly project activity (presented on a week-by-week basis) 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: The project owner shall provide the designated cultural resource specialist and the CPM with a week-by-week schedule of the upcoming construction activities, one month in advance, as well as maps showing where the construction activity is scheduled to take place. These advance schedules are to be provided to the CPM with the Monthly Compliance Report.

CUL-9 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the designated cultural resources specialist 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 designated specialist shall prepare a weekly summary report on the progress or status of cultural resource-related activities. The weekly summary reports are to be filed with the project owner for inclusion in the Monthly Compliance Report to the CPM. 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 include in the Monthly Compliance Reports to the CPM, copies of the weekly summary reports prepared by the designated cultural resource specialist on the progress or status of cultural resource monitoring and mitigation activities.

CUL-10 The designated cultural resource specialist shall be present at all times to monitor construction-related grading, excavation, trenching, and/or augering in the vicinity of previously recorded archaeological sites and in areas where cultural resources have been identified during project construction.

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 of the changes. The designated cultural resource specialist shall use mile post markers and boundary stakes placed by the project owner to identify areas where monitoring is being reduced or is no longer deemed necessary.

The daily logs prepared by the designated cultural resource specialist shall indicate by tenths of a post mile, where and when monitoring has taken place and where monitoring has been deemed unnecessary.

Verification: 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 on project-related cultural resource activities.

CUL-11 The project owner shall ensure the recovery, preparation for analysis, analysis, and preparation 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 keep these files available for periodic audit by the CPM.

CUL-12 The project owner shall ensure preparation of a Preliminary Cultural Resource Report following completion of data recovery and site mitigation work. The preliminary report is to be prepared by the designated cultural resource specialist and the project owner shall submit the preliminary report to the CPM for review, comment, and written approval.

Protocol: The preliminary report shall include (but not be limited to) preliminary information on the survey report(s), methodology, and recommendations; site records and maps; determinations of sensitivity and significance; data recovery and other mitigation activities; discussion of possible results and findings of any analysis to be conducted on recovered cultural resource materials and data; proposed research questions which may be answered or raised by the data recovered from the project; and an estimate of the time needed to complete the analysis of recovered cultural resource materials and prepare a final report.

If no cultural resource materials were recovered during project construction, the CPM-approved Preliminary Cultural Resource Report shall also serve as the final report and shall be filed with appropriate entities, as described in conditions CUL-13 and CUL-14, below.

Verification: The designated cultural resources specialist shall prepare a preliminary report on the cultural resource monitoring and mitigation activities conducted for the project. The report shall be prepared within 90 days following completion of the

data recovery and site mitigation work. Within 7 days after completion of the report, the project owner shall submit a copy of the Preliminary Cultural Resource Report to the CPM for review, comment, and written approval.

CUL-13 The project owner shall ensure the preparation of a Final Cultural Resource Report by the designated cultural resources specialist, if significant or diagnostic cultural resources are found. The Final Cultural Resource Report shall be completed within 90 days following completion of the analysis of the recovered cultural materials and related information.

Protocol: The Final Cultural Resource Report shall include (but not be limited to) the survey report(s), methodology, and recommendations; site records and maps; description and inventory list of recovered cultural materials; determinations of significance and potential eligibility; data recovery and other mitigation activities; results and findings of any special analyses conducted on recovered cultural resource materials; research questions answered or raised by the data from the project; and the name and location of the public institution receiving the recovered cultural resources for curation.

Verification: The Final Cultural Resource Report shall be prepared by the designated cultural resources specialist for the project, within 90 days following completion of the analysis of the recovered cultural materials and preparation of related text, maps, tables, charts, photos, etc. Within 7 days after completion of the report, the project owner shall submit a copy of the Final Cultural Resources Report to the CPM for review and approval.

CUL-14 The project owner shall submit an original, or an original-quality copy of the CPM-approved Final Cultural Resource Report to the public institution receiving the recovered data and materials for curation, to the SHPO, and to the appropriate regional archaeological information center(s). A legible copy of the approved final report shall be filed with the CPM, with a request for confidentiality, if needed to protect any sensitive resources or sites.

Protocol: The copies of the Final Cultural Resource Report to be sent to the curating institution, the SHPO, and the regional information center(s) shall include the following (as applicable to the project findings set forth in the final report): clean and reproducible original copies of all text; originals of any topographic maps showing site and resource locations; original or clear copies of drawings of significant or diagnostic cultural resource materials found during pre-construction surveys, during project-related monitoring, data recovery, and mitigation; and 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 institution with a set of negatives for all of these photographs.

Verification: The project owner shall maintain in its compliance files, copies of all documentation related to the filing of the original materials and the CPM-approved Final Cultural Resources Report with the public institution receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center(s). If no significant cultural resources were recovered, then the preliminary report shall serve as the final report and copies of the preliminary report shall be filed with these same agencies.

CUL-15 Following the filing of the CPM-approved Final Cultural Resource Report with the appropriate entities, the project owner shall deliver for curation all cultural resource materials, maps and data collected during data recovery and mitigation for the project. The materials shall be delivered for curation into a public repository that meets the US Secretary of Interior requirements for the curation of cultural resources.

Verification: All recovered cultural resource materials shall be delivered for curation within 30 days following the filing of the CPM-approved Final Cultural Resource Report. The project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate public repository(ies) to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

D. PALEONTOLOGIC RESOURCES

This analysis discusses the project's potential impact on paleontologic resources, which include fossilized remains or trace evidence of prehistoric plants or animals preserved in soil or rock. These resources may be found anywhere in California and are becoming increasingly vulnerable to disturbance by extensive development in the state. Paleontologic resources are considered non-renewable resources, because the plants and animals they represent are extinct.

SUMMARY OF EVIDENCE

CEQA defines a potentially significant environmental effect as occurring when the proposed project will disrupt or adversely affect a paleontologic site, except as part of a scientific study. [Cal. Code of Regs., tit. 14, §§15000, et seq., APPENDIX G(V)(c).]

1. Environmental Setting

The site vicinity is underlain by surficial sedimentary units of predominantly Pleistocene and Holocene to Recent age. The substructure of these units is characterized by sand, gravel, silts, and clay that are all potentially favorable to the preservation of paleontologic resources. (4/28 RT 115.) In addition, gradual long-term erosion and previous construction activities have removed parts of the recent soil cover so that Quaternary rock units and their contained fossils are now at or near the surface throughout most of the project area. (Ex. 1, p. 5.8-3; Ex. 28, p. 356.)

Locations within a one-mile radius of the site contain scientifically important paleontologic resources that represent a wide variety of terrestrial and aquatic vertebrate taxa including camel, bison, and rodent mammalian taxa.[1] (Ex. 1, p. 5.8-4; Ex. 28, p. 356.) Through the use of recent geotechnical studies, the site and laydown areas have been assigned a low sensitivity rating, since shallow excavations (10-feet or less) are predicted to unearth only artificial fill material. (Ex. 1, p. 5.8-8.) No fossil materials were observed by Applicant or Staff during their field surveys of the site and linear routes. (Ex. 1, pp. 5.8-8 through 5.8-10; Ex. 7, p. 5.8-1 et seq.; 4/28 RT 114-115.)

2. Potential Impacts

The potential for significant project impacts to paleontologic resources is directly related to the likelihood that such resources would be present in areas affected by the project and whether such resources are actually encountered during project development activities. (Ex. 28, p. 357.) The existence and significance of fossil materials at the site remain uncertain until the ground surface is broken and excavation of sub-surface soils takes place. (*Ibid*.) Applicant will implement mitigation measures to ensure that no

[1] A osteichthyean fish skull was previously recovered in the Pittsburg area within 0.33 mile of the site.

adverse impacts to significant paleontologic resources will occur during excavation, construction, and operation. (4/28 RT 115; Ex. 1, p. 5.8-12.)

Site clearance and grading will likely have limited impact to paleontologic resources since the maximum excavation will be 12-15 feet and the site has a maximum of 10 feet fill depth. The extent of impact will depend on the nature of materials encountered below the fill. (Ex. 28, p. 357.)

The steam pipeline will be constructed above ground and will have no impact. The underground water pipeline, however, has a high sensitivity for encountering paleontologic resources where the route does not go through fill material. (Ex. 28, p. 358.)

Construction of foundations for the transmission structures will require drilling to variable depths for each power pole. While no surface evidence of paleontologic resources was observed during field surveys, construction could encounter the intermingled mix of fossil-bearing sediments identified in the literature and record searches conducted by Applicant. (Ex. 1, p. 5.8-4.)

3. Mitigation Measures

Applicant's proposed mitigation includes a construction monitoring program combined with a five-point paleontologic resource monitoring program (Ex. 1, pp. 5.8-12 and 5.8-13.) This program includes design modification to reduce impacts; access restrictions during construction, construction crew training; emergency discovery procedures; and paleontologic monitoring by construction sampling and data recovery. (*Ibid.*)

Staff concurred with these mitigation measures and added the selection criteria for a designated paleontologic resource specialist; the steps involved in recovery and analysis; the curation of any fossil remains; and the submittal of periodic reports. (Ex. 28, p. 359.) Staff's witness testified that Applicant's proposed mitigation measures, as modified by Staff, ensure that project impacts to paleontologic resources would be insignificant. (4/28 RT 15.)

COMMISSION DISCUSSION

The Commission has incorporated the mitigation measures, as modified by Staff, into the Conditions of Certification.

Staff did not initially identify a specific repository that would receive and curate fossil materials recovered during construction. (4/28 RT 117-118.) Applicant's witness, Brian Hatoff testified that he would prefer the University of California Museum of Paleontology. (4/28 RT 119.) In response to the Committee's directive to identify appropriate repositories for curation purposes, Staff also identified the Museum of Paleontology and added the San Francisco Hall of Sciences. Staff indicated, however, that on occasion these and other repositories may not be willing to accumulate

additional examples of similar resources they already possess. [5/10 Staff Brief (Supplemental Testimony).] Condition PAL-2 provides that identification of the institution willing to receive the materials should be included in the Paleontologic Resources Monitoring and Mitigation Plan.

FINDINGS AND CONCLUSIONS

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

1. Paleontologic Resources are known to exist within one mile of the project site.

2. The site and laydown areas have been assigned a low sensitivity rating since shallow excavations of less than 10 feet are predicted to unearth only artificial fill material.

3. The underground water pipeline route is assigned a high sensitivity rating where the route does not go through fill material.

4. Construction of foundations for transmission line structures could encounter an intermingled mix of fossil-bearing sediments.

5. The existence and significance of fossil materials that may be unearthed during construction remain uncertain until the ground surface is broken and excavation of sub-surface soils takes place.

6. Applicant will implement a Paleontologic Resources Monitoring and Mitigation Plan and other mitigation measures to protect fossil materials.

7. Implementation of the Conditions of Certification below, which include Applicant's and Staff's mitigation proposals, should ensure that project activities will not cause significant adverse impacts to paleontologic resources.

8. With implementation of the Conditions of Certification below, PDEF will conform with all applicable laws, ordinances, regulations, and standards relating to paleontologic resources as set forth in the pertinent portions of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

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 paleontologic resources specialist approved by the

Commission Compliance Project Manager (CPM), is available for field activities and prepared to implement the Conditions of Certification.

The designated paleontologic resources specialist shall be responsible for implementing all the 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 paleontologic resources specialist.

The statement of qualifications for the designated paleontologic resource specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology, or paleontologic resource management; at least three years of paleontologic resource mitigation and field experience in California, including at least one year's experience leading paleontologic 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 paleontologic resources 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 paleontologic resources specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontologic resources 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 paleontologic resources 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 lessor number of days mutually agreed to by the project owner & CPM) prior to the start of construction on the project, the project owner shall submit the name and resume and the availability for its designated paleontologic resources specialist, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontologic resources specialist.

PAL-2 At least 10 days prior to the termination or release of a designated paleontologic 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 paleontologic 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.

Protocol: Prior to the start of project construction, the designated paleontologic resource specialist shall prepare a draft Paleontologic Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontologic resources. The CPM will review and must approve in writing, the Paleontologic Resources Monitoring and Mitigation Plan. After CPM approval, the project owner's designated paleontologic resource specialist shall be available to implement the Monitoring and Mitigation Plan, as needed throughout project construction.

The Paleontologic 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.

- An identification of the person(s) expected to assist with each of the tasks identified in (a), above, 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 schedule for the monitoring.

- The designated paleontologic 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' (SVP) standards and requirements for the curation of paleontologic resources.

- 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. 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 CPM with a copy of the Monitoring and Mitigation Plan prepared by the designated paleontologic resource specialist. The CPM shall provide written approval or disapproval of the proposed Paleontologic Resources Monitoring and Mitigation Plan within 15 days of receipt of the submittal. If the plan is not approved, the project owner, the designated paleontologic resources specialist, and the CPM shall meet to discuss comments and work out necessary changes.

PAL-3 Prior to the start of project construction, the designated paleontologic resources specialist shall prepare and conduct an employee training program. The project owner shall submit the paleontologic resources training program to the CPM for review and approval.

Protocol: The paleontologic training program will discuss the potential to encounter fossil 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 sensitive paleontologic resources are encountered during project activities. The training program will be presented by the designated paleontologic 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 (or designee) for review, comment, and written approval; the proposed employee training program and the set of reporting procedures the workers are to follow if paleontologic resources are encountered during project construction.

The CPM shall provide the project owner with written approval or disapproval of the employee training program and set of reporting procedures. If the draft employee training program and set of procedures are not approved, the project owner, the designated paleontologic resources specialist, and the CPM shall meet to discuss comments and work out necessary changes.

PAL-4 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontologic resource specialist shall provide the 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 paleontologic resources or deposits that may be discovered during project-related ground disturbance.

Verification: Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontologic resources specialist shall present the CPM-approved paleontologic resources training program. The training shall include a set of reporting procedures for paleontologic resources encountered during project activities. The project owner shall provide documentation to the CPM in the Monthly Compliance Report, that the employee training and the set of procedures have been provided to all project managers, construction supervisors, and to all workers. Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-5 The designated paleontologic resource specialist shall be present at 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 paleontologic resources 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 of the changes.

Verification: The project owner shall include in the Monthly Compliance Reports to the CPM, a summary of paleontologic activities conducted by the designated paleontologic resource specialist.

PAL-6 The project owner, through the designated paleontologic resource specialist, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontologic 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 paleontologic resource specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for and delivery of all significant paleontologic 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 Final Paleontologic Resources Report and shall keep these files available for periodic audit by the CPM.

PAL-7 The project owner shall ensure preparation of a Final Paleontologic Resources Report by the designated paleontologic resources specialist. The Final Paleontologic Resource Report shall be completed following completion of the analysis of the recovered fossil materials and related information. (If no materials were found, the final report can simply be a brief statement to that fact.) The project owner shall submit the final paleontologic report to the CPM for written approval.

Protocol: The final report shall include (but not be limited to) a description and inventory list of recovered fossil materials; a map showing the location of paleontologic resources encountered determinations of sensitivity and significance; and statement by the paleontologic resources specialist that project impacts to paleontologic resources have been mitigated.

Verification: The Final Paleontologic Resources Report shall be submitted under a cover letter stating that it is to a confidential document. The report is to be prepared by the designated paleontologic resources specialist for the project, within 90 days following completion of the analysis of the recovered fossil materials. The project owner shall submit a copy of the Final Paleontologic Resources Report to the CPM for review and written approval.

PAL-8 The conditions for certification for closure will be determined when a closure and postclosure maintenance plan are submitted to the CPM 12 months prior to closure of the facility.

Protocol: The closure requirements for paleontologic resources are to be based upon the Final Paleontologic Resources Report and the proposed grading activities for closure.

A description regarding closure activities potential to impact paleontologic resources is to be included in the closure plan. If no activities are proposed that would potentially impact paleontologic resources, then no mitigation measures for paleontologic resource management are required.

VIII. LOCAL IMPACT ASSESSMENT

ALL ASPECTS OF A POWER PLANT PROJECT AFFECT IN DIFFERING DEGREES, THE COMMUNITY IN WHICH IT IS LOCATED. CHARACTERIZATION OF A PROJECT'S EFFECT UPON THE LOCAL AREA VARIES FROM CASE TO CASE DEPENDING UPON THE NATURE AND THE EXTENT OF THE COMMUNITY AND OF THE ASSOCIATED IMPACTS. IN THE PRESENT INSTANCE, WE BELIEVE THE TECHNICAL TOPIC AREAS DISCUSSED IN THIS PORTION OF OUR DECISION ARE THOSE CONSTITUTING THE MOST LIKELY AREAS OF POTENTIAL 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.

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. 1, pp. 5.9-2 et seq., Ex. 29, pp. 9 et seq.)

1. The Site

The site will occupy 12 acres of an undeveloped 94-acre parcel owned by USS-POSCO[1] in the Northeast River Subarea, where all of Pittsburg's heavy industrial uses are located.[2] The site is designated General Industry (IG) on the General Plan Land Use Map. (See LAND USE Figure 1.) 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." This area is zoned "General Industrial (IG) District." (See LAND USE Figure 2.) Staff and Applicant agreed that the project is consistent with the purpose of these designations and would not constitute a change in the current development pattern of the area. (Ex. 5/4 RT 7, 13.)

The 1998 Pittsburg General Plan Update, which is in the preliminary planning stage, reported that there is inadequate buffering between the Northeast River industrial facilities and the residential neighborhoods at Harbor Street. Although a specific buffering policy has not been adopted, Staff identified areas where buffers between the site and residential areas will provide adequate separation of land use activities. (Ex. 28, pp. 27-28.)

No residential uses adjoin the power plant site. (Ex. 29, p. 28.) The nearest residences at Harbor and E. 8th Streets, about 1,300 feet from the southwest corner of the site, are separated from the site by a portion of USS-POSCO's undeveloped parcel that is zoned for Limited Industrial use. The 12-foot sound wall to be installed along the perimeter of the Truck Bypass Road will provide buffering for residences south of the site along East Santa Fe Avenue.

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[1] Assessor's Parcel Number (APN) 073-030-12.

[2] The exception is the Pittsburg Power Plant located to the west of this area.

LAND USE Figure 1 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 29, p. 16

LAND USE Figure 2 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 29, p. 17

Residential uses to the north (New York Landing) and northwest (Bay Harbor Park) are separated from the site by existing service, commercial, and industrial uses. (Ex. 29, p. 28.)

2. Stack Height Variance

The project's heat recovery steam generator stacks (150 feet tall) and the auxiliary boiler stack (100 feet tall) exceed the maximum height (50 feet) allowed within the IG District. The Pittsburg Municipal Code, however, provides for heights 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 for a total of 95 feet.[3] (5/4 RT 10-11.) PDEF's stacks, however, surpass the 95-foot height maximum by 55 feet. (*Ibid*.)

The site is located adjacent to other industrial uses, including the existing Pittsburg Marine Terminal and the USS-POSCO steel mill, that have ancillary structures exceeding the 95-foot height limitation. The prospective Air Liquide project recently obtained a variance to exceed the height limitation. Applicant likewise requested a height limitation variance for its three stacks. (5/4 RT 13.)

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.[4] The city determined that PDEF conforms with the necessary findings for a variance under the Pittsburg Municipal Code.[5]

- There are special circumstances (PDEF'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 PDEF 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.

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 grey in color and have no signage on them.

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[3] Pittsburg Municipal Code, §§ 18.54.100 and 18.80.020.

[4] City of Pittsburg Resolution No. 99-8854, June 7, 1999.

[5] Pittsburg Municipal Code, § 18.16.050

3. Transmission Lines

The overhead transmission lines located entirely on USS-POSCO property will follow existing utility corridors and are compatible with existing and planned land uses. (Ex. 29, p. 28.) The underground line, placed beneath the eastbound lane of 8th Street between Harbor and Montezuma Streets, will not conflict with existing or planned residential uses. (*Ibid*.)

PDEF will construct a linear park in the abandoned railroad right-of-way along 8th Street from Harbor to Beacon Streets. Staff proposed Condition LAND-4 to ensure that PDEF builds the park and that it meets Pittsburg's specifications. (Ex. 29, p. 28.) Condition Land-5 will ensure that PDEF and Delta Energy Center (DEC) coordinate efforts to construct their respective underground transmission lines to prevent redundant construction activities along the 8th Street corridor. (*Id.,* p. 30.)

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. Staff drafted Condition LAND-2 to ensure that PDEF complies with the City of Pittsburg Zoning Ordinance for design review and site plan approval prior to construction of these facilities. (Ex. 29, p. 24; Ex. 41.)

4. Potential Cumulative Impacts

The underground lines of both PDEF and DEC would exceed the current 50-foot easement that runs through the 8th Street median, resulting in encroachment beneath the streets that parallel the existing easement. To accommodate PDEF's underground line, the City of Pittsburg will condemn a subsurface easement along the eastbound lane of 8th Street and then require PDEF to obtain a franchise agreement for the long-term right to use that easement. DEC will use the existing easement. (5/4 RT 12.)

5. Truck Bypass Road

The Truck Bypass Road would change existing land use on three parcels. Lands that are vacant but designated for industrial use on USS-POSCO property would be converted to a public right-of-way. (Ex. 1, p. 5.9-20.) A portion of the parcel that contains a city-operated ballfield would also be used for the roadway. Finally, vacant land adjacent to East Santa Fe Avenue would be converted to a public right-of-way. (*Ibid*.) This area is designated open space in the General Plan but the conversion is not considered a significant land use change because there is ample land available in the city for open spaces. (*Ibid*.)

Construction of the Truck Bypass Road would not require an amendment to the Pittsburg General Plan or Zoning Ordinance. The 1992 Final Environmental

Impact Report (FEIR) for the Waterfront Truck Route states that the route is consistent with the General Plan. (Ex. 1, p. 5.9-20a.)

The Truck Bypass Road will not displace homes or structures. The ballfield will be relocated to another portion of the same USS-POSCO parcel, on the east side of the bypass road, with an elevated pedestrian crosswalk to facilitate access. The new roadway would not disrupt or physically divide the Columbia Street neighborhood. (Ex. 1, p. 5.9-20.) The linear park proposed by PDEF between the soundwall and East Santa Fe and Columbia Street is consistent with the General Plan and reflects mitigation measures contained in the FEIR. (Ex. 29, p. 30.)

5. Natural Gas Supply Pipeline

The gas pipeline will not divide an established community because it will be underground and follow existing utility corridors. (Ex. 29, p. 29.) The City of Antioch identified some residential properties that may be encroaching the utility right-of-way along the easement where the pipeline will be built. Antioch raised a concern that if PDEF must relocate residential fences to construct the pipeline within the right-of-way, the replacement wall should be consistent with the City of Antioch's zoning requirements. (5/4 RT 11.) Staff agreed with Antioch's concern and proposed Condition LAND-3 to ensure that any replacement wall is built to Antioch's specifications. (*Id*. pp. 11-12.) Condition MECH-5, in the FACILITY DESIGN section, ensures that the pipeline is safely installed and operated in accordance with applicable law.

COMMISSION DISCUSSION

The Commission has relied on the City of Pittsburg's finding that PDEF is eligible for a height limitation variance for its HRSG and boiler stacks. Therefore, the Commission has determined that PDEF shall receive a variance in accordance with Section 18.16.050 of the Pittsburg Municipal Code. The conditions proposed by Pittsburg regarding the color and signage of these stacks are incorporated in the Conditions of Certification. The Commission hereby amends and adopts the Conditions proposed by Staff to ensure that PDEF complies with applicable laws, ordinances, regulations, and standards regarding land use requirements.

FINDINGS AND CONCLUSIONS

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

1. The site will occupy 12 acres of an undeveloped parcel owned by USS-POSCO in the Northeast River Subarea, where all of Pittsburg's heavy industrial uses are located.

2. The project is consistent with the Pittsburg General Plan and the General Industrial (IG) District zoning designation of the property.
3. The project is compatible with the heavy industrial character of the adjacent land uses.
4. The site does not abut any residential areas.
5. Buffering between the project and residential uses will be achieved by distance from the site and intervening structures, including the 12-foot sound wall along the perimeter of the Truck Bypass Road.
6. The underground line, beneath the eastbound lane of 8th Street between Harbor and Montezuma Streets, will not conflict with existing or planned residential uses.
7. The overhead/underground transmission line and the transition structures are allowable uses in all zoning districts in which they will be sited.
8. PDEF and Delta Energy Center will coordinate efforts to construct their respective underground transmission lines to prevent redundant construction activities along the 8th Street corridor.
9. The Truck Bypass Road is consistent with the Pittsburg General Plan.
10. PDEF will comply with the City of Antioch's specifications for replacing fences along the gas pipeline right-of-way.
11. PDEF is eligible for a variance from the City of Pittsburg's structural height limitation for its heat recovery steam generator stacks (150 feet tall) and its steam boiler stack (100 feet tall).
12. Construction and operation of the project will not result in significant adverse direct, indirect, or cumulative land use impacts.
13. With implementation of the Conditions of Certification, the project will conform with 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 Pittsburg Zoning Ordinance Section 18.54.015, Property Development Regulations for an IG (General Industrial) District.

Verification: At least 30 days prior to the start of construction of the power plant, the project owner shall submit evidence to the California Energy Commission Compliance Project Manager (CPM) that the project complies with Section 18.54.015. The required site landscaping and irrigation plan shall be submitted to the CPM for review and approval. The plan must show

evidence of review by the Pittsburg Community Development Director and Public Services Director.

LAND-2 The project owner shall comply with Pittsburg Zoning Ordinance section 18.36.210 (Design Review) and applicable requirements in Chapter 18.78 (Off-street Parking and Loading). The site plan (as required by section 18.36.210) shall include the power plant and electrical transition structures.

Verification: At least 30 days prior to the start of construction, the project owner shall submit a site plan to the CPM for review and approval that provides the information required for Design Review (including a statement that the project conforms to the applicable off-street parking and loading requirements). The project owner shall also submit the site plan to the City of Pittsburg for review, and provide a copy of the City's comments with the submittal to the CPM.

LAND-3 If construction of the natural gas pipeline within the PG&E easement will require relocation of existing wood fencing, the project owner shall replace the fencing with a wall of masonry construction (pursuant to Antioch Zoning Ordinance Section 9-5.1601.F) or other material as specified by the City of Antioch. The new wall or fence, if necessary, shall be located on the legal boundary of the easement.

Verification: At least 30 days prior to construction of the gas pipeline, the project owner shall submit a site plan to the CPM for review and approval that shows the precise location of the new pipeline in relation to the existing fence lines and easement boundaries. The plan shall include a statement whether or not installation will require displacement of existing fences. If construction will require relocation of existing wood fencing to the legal boundary of the easement, the submittal to the CPM shall provide proof that the new fencing material meets the specifications of the City of Antioch.

LAND-4 After construction of the transmission lines is completed in the 8th Street corridor, the project owner shall construct, in coordination with the Delta Energy Center, a linear green belt within the 8th Street median between Harbor Street and Beacon Street.

Verification: At least 30 days prior to the start of construction of the green belt, the project owner shall submit a landscaping and irrigation plan to the CPM for review and approval. The submittal shall include evidence of review by the Pittsburg Community Development Director and Public Services Director.

LAND-5 The project owner shall coordinate, with the Delta Energy Center, construction of the underground transmission line along the 8th Street corridor and through Delta Diablo pumping station property to allow simultaneous installation and to minimize disturbance in the area.

Verification: At least 30 days prior to start of construction of the undergound transmission line, the project owner shall submit a construction plan to the CPM for review and approval. The plan shall describe how the project owner will coordinate construction activities with the Delta Energy Center to minimize disturbance to adjacent land uses. The submittal to the CPM must show evidence of review by the City of Pittsburg.

LAND-6 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 30 days prior to the start of construction, the project owner shall submit evidence to the CPM that it will comply with Title 12, Title 13 and Chapter 15.88 of the Pittsburg Municipal Code.

LAND-7 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 150 feet tall and the steam boiler stack to be 100 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 150 feet and the steam boiler stack will be limited to 100 feet and that the project shall comply with other conditions contained in the City of Pittsburg's Resolution No. 99-8854 (June 7, 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. 29, p. 40.) LOS measurements represent the flow of traffic, ranging from level A (free flowing traffic) to level F (heavily congested with traffic flow stopped). (*Ibid.*) 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. (*Id.*, p. 42.)

SUMMARY OF EVIDENCE

PDEF will be located near the intersection of East 3rd and Columbia Streets. The City of Pittsburg presently has two designated truck routes serving the industrial areas on 3rd Street. Both routes use Highway 4 and the Loveridge Road interchange. (Ex. 29, p. 40.) Truck Route 1 uses California Avenue west to Harbor Street north to connect to 3rd Street. Truck Route 2 uses Loveridge Road north to the Pittsburg-Antioch Highway, west to East 14th Street, west to Solari Street, north to East 10th Street, east to Harbor Street and then north to 3rd Street. (*Ibid*.) An active rail line and spur tracks are located within 0.5 mile of the project site.[1] See TRAFFIC AND TRANSPORTATION Figure 1.

1. Truck Bypass Road

The City of Pittsburg certified the Truck Bypass Road in the Final Environmental Impact Report (FEIR) prepared for the Waterfront Truck Route in 1992. See, TRAFFIC AND TRANSPORTATION Figure 2. Although the Truck Bypass Road is not part of the PDEF project, Applicant plans to construct this road for the City of Pittsburg. It will be designated as the access route for all construction traffic ingressing and egressing the site. (Ex. 1, pp. 5.11-3 et seq.) This road is designed to bypass the residential and commercial areas on East 14th Street,

[1] Applicant will not use rail for equipment delivery. (Ex. 29, p. 44.)

Solari Street, California Avenue, Harbor Street, and East 10th Street.[2] Applicant's analysis assumes that the Truck Bypass Road would be completed within two months after construction begins at the PDEF site. (*Ibid*; 5/3 RT 153.)

Public comment opposing the Truck Bypass Road was presented at the evidentiary hearings.[3] Pittsburg residents John Garcia and George Harris expressed their concerns that the location of the road would adversely impact the Central Addition neighborhood and they requested alternative routing.[4] (5/3 RT 186-190; 195-199). Cecilia Blackwood supported PDEF's plans to install a sound wall along the perimeter of the bypass road, which would provide space to build a greenbelt or linear park at the end of Santa Fe Boulevard. Ms. Blackwood also supported PDEF's plans to build an overcrossing on Columbia Street, relocate the baseball field, and develop Central Park. (5/3 RT 191-194.)

Mr. M. S. Lengyel opposed the Truck Bypass Road based on public health concerns about diesel fuel exhaust and requested that the Commission sever the bypass road from the certification proceeding.[5]

The Pittsburg Assistant City Manager, Glen Valenzuela, testified that the city has been working with Central Addition residents to address their concerns. (5/3 RT 154-160.) In response to questions regarding alternative routes to the Truck Bypass Road, Mr. Valenzuela indicated that the city remains committed to the proposed route. (5/3 RT 183.) Applicant's witness, Sam Wehn, testified that PDEF had reviewed several alternative routes but concluded that the proposed route is the most feasible. (5/3 RT 183-184.) Mr. Wehn also testified that designs for the linear parks and Central Park were presented to the concerned residents but the plans had not yet been finalized. (5/3 RT 161-162.) Mr. Wehn stated that Applicant would complete the parks prior to commercial operation.[6] (*Ibid.*)

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[2] Applicant considered construction traffic impacts if the Truck Bypass Road were not built and determined that project-related traffic, while temporary, would impact the quality of life for residents in the Central Addition at Columbia, E. 14th, Harbor, Solari, and E. 10th Streets. (Ex. 1, p. 5.11-13.)

[3] To encourage public involvement in the project, PDEF established the Pittsburg Power Plant Advisory Committee consisting of residents, city staff, and PDEF representatives to meet periodically to discuss issues related to project development, including the Truck Bypass Road. Public concerns about the Truck Bypass Road had been previously discussed at Advisory Committee meetings.

[4] Mr. Garcia and Mr. Harris submitted a petition signed by over 100 residents who oppose the routing of the Truck Bypass Road.

[5] Mr. Lengyel presented public comment at the May 26th hearing and submitted three letters.

[6] The Pittsburg Power Plant Advisory Committee sent a letter to the Presiding Member requesting a Condition of Certification that would require Applicant to complete the landscaping and amenities to Central Park and the Santa Fe and Columbia Street greenbelts at the same time as the bypass road.

TRAFFIC AND TRANSPORTATION Figure 1 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 1, Figure 5.11.1

TRAFFIC AND TRANSPORTATION Figure 2 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 1, Figure 5.11-3

Condition VIS-4 in the VISUAL RESOURCES section requires PDEF to implement a landscaping plan for the sound wall and linear parks by the end of the calendar year when PDEF begins construction of the bypass road and sound wall. The City of Pittsburg will use its existing lighting and landscaping district to maintain the parks and landscaping. (5/3 RT 157.)

2. Construction Impacts

The 20-month construction schedule anticipates an average workforce of 90 workers per day for 11 months and a peak workforce of about 263 workers per day for a 9-month period. The largest workforce of 299 workers will occur in month 14 of the schedule. (Ex. 7, pp. 5.11-2 et seq.) During construction, Applicant expects workers to arrive onsite between 6:30-7:30 a.m. and leave between 4:00-5:00 p.m. Using the worst-case assumption of one worker per car, Applicant predicts an average of 263 arrival and departure trips per day during the peak period. (5/3 RT 148-149.) See TRAFFIC AND TRANSPORTATION Table 1.

Applicant evaluated the p.m. peak hour because it reflects the highest level of traffic volumes on a weekday in the waterfront area. With the addition of construction traffic including worker departures and truck trips during the p.m. peak hour, all intersections would continue to operate within the city's LOS. (Ex. 1, p. 5.11-10.) See TRAFFIC AND TRANSPORTATION Table 2.

Applicant expects that offsite linear construction projects will have a peak labor force of about 30 persons about midway through the schedule. Truck and heavy equipment usage range from 1 to 11 vehicles. (Ex. 1, p. 5.11-9.) Each linear project will generate a negligible amount of morning and afternoon peak hour trips, with the great majority away from the waterfront area. Heavy equipment will ingress each linear site once and remain within the construction easement for the duration of its construction. (*Ibid*.)

Construction of the water pipeline may encroach into the Pittsburg-Antioch highway. To mitigate potential interference with traffic flow, construction will occur between 9:00 a.m. and 2:30 p.m. near the intersection of the Truck Bypass Road and Loveridge Roads. Construction hours will also be limited at Somerville and Buchanan Roads to avoid peak traffic congestion. (5/3 RT 165-166.)

During the two-month initial construction period, project-related traffic will utilize Truck Route 1 on an interim basis. Applicant expects about 935 truck deliveries per month, resulting in 43 truck trips per day, in and out, evenly distributed during the workday. (Ex. 1, p. 5.11-11 et seq.) While the addition of this traffic may cause slight delay at some intersections, the LOS at the intersections will not be affected. (*Ibid*.) Staff agreed with Applicant that the initial construction traffic would not cause any significant impacts. (*Ibid;* 5/3 RT 165.)

TRAFFIC AND TRANSPORTATION Table 1 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 7, Revised Table 5.11-5

TRAFFIC AND TRANSPORTATION Table 2 - NOT AVAILABLE IN PDF VERSION

Source: Ex. 1, Table 5.11-6

After the initial mobilization, onsite truck trip generation using the Truck Bypass Road, would average 149 deliveries per month during the 9-month peak period. (5/3 RT 149.) Applicant calculated this peak truck traffic to average 7-8 deliveries per day in and out. Applicant and Staff agreed that no significant traffic impacts would result from these truck trips. (*Ibid*.) See TRAFFIC AND TRANSPORTATION Table 2.

3. Operation Impacts

During project operation, the project will employ 20 persons and average two truck deliveries per day. (Ex. 29, p. 49.) Truck deliveries of hazardous materials are expected to generate less than 10 truck trips in and out of the site per week. Aqueous ammonia, the most hazardous material, would be transported in 8,000-gallon tankers on an average of once every 4 days (a total of 87 trips per year). Potential impacts from transporting hazardous materials can be mitigated to insignificance by compliance with applicable federal and state law. (See HAZARDOUS MATERIALS MANAGEMENT section of this Decision.) Staff agreed with Applicant that no significant traffic impacts are expected to result from project operations. (Ex. 29, p. 49; 5/4 RT 149.)

COMMISSION DISCUSSION

The Truck Bypass Road, a peripheral element of the project, has become a major issue between PDEF, the City of Pittsburg, and the residents of the Central Addition. The City of Pittsburg could have constructed the bypass road at any time since the 1992 FEIR but apparently lacked the fiscal resources to do so. Because the bypass road would serve trucks and other traffic going to the power plant site, Applicant agreed to include the road in the project description.

The Commission is aware of public opposition to the bypass road routing. The routing alternatives proposed by members of the public, however, include the use of private property held by USS-POSCO and the crossing of active rail lines. Both Applicant and the City of Pittsburg indicated that those routes were not feasible; indeed, the 1992 FEIR considered and rejected such alternative routes. The Commission is bound by law to accept the findings of the 1992 FEIR unless there are substantial changes or new information that require major revisions. (Cal. Code of Regs., tit. 14, § 15162.) The evidence of record does not establish that new circumstances would require major changes to the FEIR.

The inclusion of the Truck Bypass Road in this case is the result of an agreement between PDEF and the City of Pittsburg. From the Commission's perspective, the bypass road could be considered a measure to mitigate potential impacts from construction-related traffic. While that consideration provides a nexus between the project and the bypass road, it is not an essential mitigation measure. The temporary nature of construction traffic and the existence of truck

routes in the City of Pittsburg also serve to mitigate the effects of project-related traffic.

We find that the Truck Bypass Road is not necessary to mitigate construction-related impacts. The evidence indicates that during the initial 2-month construction period when PDEF would use Truck Route 1, there will be approximately 43 truck trips per day. After the initial construction period, when the bypass road would be available, construction-related truck deliveries would only average 7-8 per day. During operation, there will be fewer daily truck deliveries.

Therefore, the Truck Bypass Road is not included in the Commission's certification of PDEF. The Commission has revised Condition TRANS-1 to delete the road but to require PDEF to construct the 12-foot sound wall to mitigate project-related visual and noise impacts.

The Commission expects that Applicant and the City of Pittsburg will consult with Central Addition residents on the design and routing of the road if PDEF decides to construct it. We believe the design and routing of the Truck Bypass Road should remain a local matter.

With respect to the amenities proposed by Applicant such as installing the linear parks, relocating the baseball field, building an overcrossing to the baseball field, and completing Central Park, the Commission believes that Applicant has acted in good faith to work with the local community on those plans. Applicant agreed to complete installation of the amenities no later than commencement of project operation. (5/3 RT 162.) The City of Pittsburg has agreed to allocate resources to maintain the landscaping and the parks. (5/3 RT 157.)

The Commission encourages Applicant to install the parks and amenities at the same time that it constructs the 12-foot sound wall as requested by the Power Plant Advisory Committee. The Commission further admonishes the City of Pittsburg to maintain the parks as stated in the record.

The Commission is persuaded that any potential traffic impacts from project construction and operation are likely to be insignificant if the mitigation measures described in the Conditions of Certification are implemented appropriately.

FINDINGS AND CONCLUSIONS

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

1. Project construction and operation will increase traffic on the roads near the project site.
2. Construction-related traffic impacts will be temporary.

3. There are two existing truck routes through the City of Pittsburg to the 3rd Street waterfront area where the project site is located.

4. Based on an agreement with the City of Pittsburg, Applicant plans to build the Truck Bypass Road identified in the City of Pittsburg's 1992 Final Environmental Impact Report (FEIR) on the Waterfront Truck Route.

5. There are no new circumstances that would require changing the Truck Bypass Road routing as described in the 1992 FEIR.

6. The Truck Bypass Road would move truck traffic off the existing truck routes and around the Central Addition neighborhood away from residential streets.

7. The Truck Bypass Road would be the designated route for all project-related traffic.

8. The Truck Bypass Road is not required to mitigate impacts from construction-related traffic, which are temporary impacts.

9. Applicant and the City of Pittsburg will consult with residents of Central Addition to finalize plans for linear parks, Central Park, and other amenities related to the Truck Bypass Road and 12-foot sound wall.

10. Applicant will complete installation of linear parks, Central Park, and other amenities related to the Truck Bypass Road and 12-foot sound wall no later than the time that project operations commence.

11. The Truck Bypass Road is not included in the certification of the PDEF project.

12. The City of Pittsburg will maintain the landscaping and other amenities installed by Applicant in the Central Addition neighborhood.

13. Applicant will construct a 12-foot sound wall and appropriate landscaping to mitigate project-related visual impacts and noise even if the road itself is not built.

14. The roads in the project vicinity meet the City of Pittsburg's Level of Service requirements.

15. Traffic related to project construction and operation will not degrade the Level of Service on roads in the project vicinity.

16. Applicant will comply with specified offpeak timelines for construction of linear facilities near congested roadways.

17. Implementation of the mitigation measures described in the Conditions of Certification below will ensure that project-related traffic will not result in significant impacts to the transportation system in the project vicinity.

18. 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 has agreed with the City of Pittsburg to construct the Truck Bypass Road and a 12-foot sound wall, which were certified in Pittsburg's 1992 Final Environmental Impact Report on the Waterfront Truck Route. Even if the Truck Bypass Road is not built, the project owner shall construct a 12-foot sound wall with appropriate landscaping to mitigate project-related visual and noise impacts.

Verification: The project owner shall complete a 12-foot sound wall and install appropriate landscaping, no later than the start of commercial operation. In the Monthly Compliance Reports, the project owner shall submit progress reports on design agreements and time estimates for completion of the 12-foot sound wall and the landscaping requirements contained in Condition of Certification **VIS-4**.

TRANS-2 The project owner shall require that all truck traffic utilize the existing designated truck route: Loveridge Road interchange from Highway 4, California Avenue, Harbor Street and 3rd Street to access the site unless the Truck Bypass Road is built. If the Truck Bypass Road is built, it shall serve as the truck route for project-related traffic.

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-3 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-4 The project owner or its contractor shall comply with Caltrans, the City of Pittsburg and the City of Antioch for 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 6 months after the start of commercial operation.

TRANS-5 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-6 Prior to the start of construction, the project owner shall consult with the City of Pittsburg, the City of Antioch and Caltrans and will prepare a construction traffic control plan and implementation program which address the following issues:

- timing of heavy equipment and building materials deliveries;
- signing, lighting and traffic control device placement;
- establishing construction work hours outside of peak traffic periods;
- emergency access;
- temporary travel lane closures;
- maintaining access to adjacent residential and commercial property and;
- off street employee parking in construction areas during peak construction.

Verification: At least 30 days prior to start of construction, the project owner shall provide to the CPM for review and approval, a copy of its construction traffic control plan and implementation program.

TRANS-7 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 actions necessary and schedule to complete the repair of all roadways to original or as near original condition as possible.

Protocol: At least 30 days prior to start of construction, the project owner shall photograph the primary routes to be used by construction traffic (from 10th Street, north along Harbor Street, east on 3rd Street to

project site). Those areas that will be affected by pipeline construction (at Pittsburg-Antioch Highway between the Truck Bypass Road and Loveridge Road and key intersections within Antioch, especially at Somersville/ Buchanan Roads) shall also be photographed). The project owner shall provide the CPM, City of Pittsburg, City of Antioch, Caltrans, and Contra Costa County with a copy of these photographs.

Verification: Within 30 days of the completion of project construction, 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 the aforementioned agencies of jurisdiction including Caltrans, acknowledging satisfactory completion of the roadway repairs in the first Annual Compliance Report following start of operation of the PDEF.

TRANS-8 Construction of the reclaimed water supply and wastewater discharge lines along the Pittsburg-Antioch Highway between the Truck Bypass Road and Loveridge Road shall be committed to the limited construction timeframes in this specific area from 9 AM to 2:30 PM, or after 7 PM when there are temporary travel lane closures. Construction activities for gas and water pipelines within the jurisdiction of the City of Antioch shall also be committed to the limited construction timeframes of 9 AM to 2:30 PM, when temporary travel lane closures occur along key intersections. Construction within any of City of Antioch's road rights-of-way shall be prohibited between October 15th and February 1st of the year to address retail activities in the area.

Protocol: At least 30 days prior to start of construction, the project owner shall contact the appropriate local agencies (City of Pittsburg, City of Antioch, Contra Costa, and Caltrans) to discuss scheduling of construction activities within their jurisdiction, and establish appropriate construction timeframes for pipeline activities along key intersections.

Verification: At least 30 days prior to start of construction activities in this specific area, 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 pipelines. 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 the Pittsburg-Antioch Highway.

TRANS-9 The project owner shall demonstrate compliance with the City of Pittsburg and the City of Antioch rights-of-way encroachment requirements related to work within the City of Antioch for road rights-of-way, and the City of Pittsburg for the gas pipeline crossing at

Loveridge Road and Pittsburg-Antioch Highway. These requirements are contained in the City of Antioch "Encroachment Regulations" Articles 1 through 7, and the City of Pittsburg "Encroachments Within Public Rights-of-Way," Title 12, Chapter 12.01 and referenced in APPENDIX A.

Protocol: Approximately 30 days prior to start of pipeline construction, 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 activities along key intersections.

Verification: 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

The California Environmental Quality Act (CEQA) requires the 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 Regs., tit. 14, Appendices G and I.) To determine whether PDEF and its linear facilities would adversely impact the viewshed surrounding the project, the Commission relied on the relevant goals and policies contained in the General Plans for the Cities of Pittsburg and Antioch and Contra Costa County, and the Pittsburg Zoning Ordinance.

SUMMARY OF EVIDENCE

1. Visual Setting

The site is zoned "General Industrial." (City of Pittsburg Zoning Ordinance.) Industrial uses lie to the east, north, and west of the site. To the east is the USS-POSCO steel mill, and to the north are the GWF Power Plant, a PG&E substation, and Koch Carbon storage and shipping facilities. To the northwest is the Pittsburg Marine Terminal petroleum coke facility. On the west side is an area of mixed industrial and commercial uses consisting of warehouses, auto and marine services, and junkyards along Industry Road. Industrial buildings line East 3rd Street near the intersection with Harbor Street. South of the site is vacant land owned by USS-POSCO. (Ex. 1, p. 5.13-10.)

There are two residential developments about 0.38 mile from the site to the west and south of East 3rd Street. (The Village at New York Landing and Bay Harbor Park.) Residences located along East Santa Fe Avenue (Central Addition) are approximately 0.4 mile south of the site. (*Id.*, p. 5.13-11.)

2. Potential Impacts

Project facilities that would cause significant visual impacts include the power plant stacks and towers, transmission lines, the two transition stations at either end of the underground transmission line, and the Truck Bypass Road and associated sound wall.[1]

To identify potential impacts, Applicant first identified sensitive public views that would be affected by the project facilities. (4/29 RT 60.) The quality and character of these views were evaluated as a baseline for the visual impact analysis. (*Ibid.*) Applicant then took panoramic photographs from the air and

[1] Applicant's preliminary assessment determined that construction and operation of offsite pipelines would either not be in public view or visual impacts would be temporary so these features were eliminated from further consideration. (4/29 RT 61.)

the ground to document the visual character of the potentially affected public views. (*Ibid.*) Using these photographs, Applicant prepared photosimulations of several sensitive views that show project features superimposed on the original photographs. (*Id.,* p. 61.) These simulations objectively demonstrate whether project impacts would be noticeable to sensitive public views.[2] (*Ibid.*)

a. Key Observation Points

Based on Applicant's initial analysis, Staff selected nine Key Observation Points (KOPs) to provide the basis for evaluating potential visual impacts. (Ex. 28, p. 191.) The parties agreed that visual impacts at the following KOPs would be *de minimus* or nonexistent: KOP 1 (Marina at New York Landing); KOP 3 (East 8th Street near Cumberland Street); KOP 6 (Railroad Avenue near City Park); and KOP 8 (Softball field in Marina Park looking west). (Ex. 28, p. 211 et seq.)

KOP 2 (Southwest corner of East 8th and Harbor Streets) is the residential area closest to the site and the eastern portion of the transmission line, and about 100 feet from the proposed transition station at the east end of East 8th Street. (Ex. 28, pp. 202-203.) With the project facilities simulated, the transition station and the nearest transmission pole would be in full view, dominating the viewshed. (*Id.*, p. 212.) The Pittsburg General Plan Update recommends buffers such as landscaping, especially at the eastern end of downtown, where residential uses come into contact with heavy industrial uses. [General Plan Update, Chapter 7 (Downtown).] Staff found that views of the transition station and the nearest transmission pole would conflict with the General Plan buffer policy and result in significant visual impacts at KOP 2. (Ex. 28, p. 214.)

To mitigate these visual impacts, Applicant reduced the height of the transmission poles from the initial proposal of 150 feet to 75 feet, which is more consistent with other transmission poles in the area. (4/29 RT 77-78.) According to Applicant's witness, the shorter poles drop out of sight earlier.[3] (*Id.*, p. 72.) Applicant will plant trees and landscaping along the east side of Harbor Street to screen the transition station from sensitive public views.[4] (Ex.

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[2] Since the site and linear facilities are located in an industrial urban setting, the analysis considered the following questions: whether the project will substantially alter the viewshed in form, line, color, and texture; whether it will eliminate or block views of valuable visual resources; whether it will create significant backscatter night light; whether it will significantly reduce sunlight; and whether it will cause substantial exhaust plumes. (Ex. 28, p. 191; Ex. 7, p. 5.13-11 et seq.)

[3] Although the shorter poles will require Applicant to add one pole to the east side and two on the west side due to the shorter span length between them, viewers will typically see only the first pole; the additional poles should not be discernible. (4/29 RT 72.)

[4] Applicant will plant larger trees to achieve tree height to cover the view within about five years. (4/29 RT 84; 87-90.) Condition VIS-8 directs Applicant to plant 15-foot trees to provide immediate screening.

29, p. 66.) At maturity, these trees will screen the lower half of the nearest transmission pole and most of the view of the power plant, two poles of the transmission line to the USS-POSCO steel mill and the mill itself. (*Ibid.*) See, VISUAL RESOURCES Figure 1.

The proposed 12-foot sound wall will dominate the view areas identified as KOP 4 (the southwest corner of East Santa Fe Avenue and Columbia Street) and KOP 5 (East Santa Fe Avenue at Cedar Street). The sound wall, however, will block views of several project features, including transmission poles and the power plant itself, as well as views of existing industrial facilities. (4/29 RT 62; Ex. 28, pp. 216, 218.) Applicant will install landscaping along the sound wall in consultation with area residents to provide a pleasant view to the community. (4/29 RT 66-68.)

Staff originally found that significant visual impacts would occur at KOP 7 (north corner of West 8th and Beacon Streets) due to views of transmission poles and the transition station near the Delta Diablo pumping station. (Ex. 29, p. 67.) To avoid conflict with Delta Diablo water pipes, Applicant will relocate the transition station north of the pumping station. (*Id.*, p. 68.) As a result, the existing pumping station structures would screen views of the electric transition station. (*Id.*, p. 68.) The relocation of the transition station moves the nearest transmission pole 200 feet farther away from KOP 7. (4/28 RT 82.) Applicant will also install landscaping at this location to screen the electric transition facilities from sensitive views. (4/28 RT 76.) Staff found these measures would reduce visual impacts at KOP 7 to levels of insignificance. (Ex. 29, p. 69.) See, VISUAL RESOURCES Figure 2.

At KOP 9 (northwest end of Marina Park looking south), the transition station is barely visible. (Ex. 29, p. 69.) The nearest transmission pole at 75 feet would appear moderate in size compared with the wide viewscape from this KOP. (*Id.*, p. 70.) Staff determined that the reduced pole height of 75 feet will adequately mitigate visual impacts at this location. (*Ibid.*) See, VISUAL RESOURCES Figure 3.

b. Exterior Lighting

Exterior lighting for the power plant has the potential to increase the lighting levels in the vicinity, creating glare, backscatter to the nighttime sky, and illumination of visible plumes. (Ex. 28, p. 222.) Applicant will submit a lighting plan to mitigate these potential impacts, including a lighting complaint resolution process to respond to community concerns. (Condition VIS-3.)

c. Visible Plumes

Cooling tower plumes also have the potential to cause visual impacts, especially at night. (Ex. 1, p. 5.13-18.) The parties agree, however, that other

industrial facilities in the vicinity also produce condensate/steam plumes, including PG&E's Pittsburg Power Plant, the GWF Power Plant No. 1; and USS-POSCO. (*Ibid.,*

Ex. 1, p. 223.) Since the introduction of cooling tower plumes from PDEF would not substantially intensify the industrial character of the area, visual impacts from these plumes would not be significant. (*Ibid.*)

Under certain meteorological conditions, steam plumes from the heat recovery steam generator (HRSG) stacks may be visible; however, HRSG exhaust plumes are smaller than cooling tower plumes and would not cause significant visual impacts.

COMMISSION DISCUSSION

There was no controverted evidence presented on this topic. Applicant's proposed mitigation, such as reducing transmission pole height and moving the transition station, are feasible measures that do not appear to compromise project design. The installation of trees and landscaping is consistent with the General Plan to use transitional buffers between industrial and residential areas. The Commission is persuaded that the industrial nature of the viewshed minimizes the potential for cumulative visual impacts resulting from the project and its ancillary facilities.

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VISUAL RESOURCES Figure 1 - NOT AVAILABLE IN PDF VERSION

Source: PDEF VISUAL RESOURCES SUPPLEMENT Figure 5m

VISUAL RESOURCES Figure 2 - NOT AVAILABLE IN PDF VERSION

Source: PDEF, VISUAL RESOURCES SUPPLEMENT Figure 10m

VISUAL RESOURCES Figure 3 - NOT AVAILABLE IN PDF VERSION

Source: PDEF VISUAL RESOURCES SUPPLEMENT Figure 12c

FINDINGS AND CONCLUSIONS

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

1. The proposed project will be located in a highly industrialized area.

2. The nearest sensitive public views are the residential areas to the west and south of the project.

3. The project's visual impacts at the residential developments (New York Landing) to the west of the site will not be significant.

4. Significant visual impacts could occur from views of the transmission poles and electric transition stations at West 8th and Beacon Streets and East 8th and Harbor Streets, the residential areas to south of the site.

5. Measures to mitigate potential impacts include: reducing transmission pole height from 150 to 75 feet, which is more consistent with pole height in the area; moving the electric transition tower at West 8th further from sensitive public view; and installing trees and landscaping to screen views of the project and transmission facilities.

6. The 12-foot sound wall associated with the Truck Bypass Road will block views of the project and transmission lines at residences along East Santa Fe Avenue and Columbia Streets.

7. Plumes from the project's cooling tower and heat recovery steam generator (HRSG) stacks will not cause significant impacts to visual resources.

8. To mitigate potential impacts such as nighttime sky backscatter or glare caused by the project's exterior lighting, PDEF will implement a lighting plan to minimize illumination of the vicinity and a lighting complaint procedure to resolve community concerns.

9. With implementation of the mitigation measures contained in the Conditions of Certification, neither the power plant nor its transmission facilities will result in significant adverse impacts to visual resources.

10. Implementation of the following Conditions of Certification will ensure that PDEF 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.

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 operations, 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 By the end of the calendar year in which the project owner starts construction of the sound wall for the truck bypass route, the project owner shall implement a treatment plan for the sound wall, the strip of land between the sound wall and Santa Fe Avenue, and the strip of land between the sound wall and the residential properties on the east side of Columbia Street. The objective of the treatment plan shall be to minimize visual impacts and to maximize the potential for community benefit.

Protocol: The project owner shall submit to the CEC CPM for review and approval a specific plan describing its treatment plan, providing evidence that the Power Plant Advisory Committee and the City of Pittsburg have been consulted regarding the plan, and attaching any recommendations from the Power Plant Advisory Committee and the City of Pittsburg. The plan shall include, but not be limited to:

- a detailed landscape 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.

- 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, the Power Plant Advisory Committee, and the City of Pittsburg when the plan has been implemented and is ready for inspection.

Verification: At least 60 days prior to the start of construction of the sound wall, the project owner shall submit the proposed treatment plan to the CPM for review and approval. The project owner shall also submit the proposed treatment plan to the Power Plant Advisory Committee and 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, the Power Plant Advisory Committee, and the City of Pittsburg within seven days after implementing the proposed plan that the treatment is ready for inspection.

VIS-5 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.

The project owner shall submit a plan for screening refuge storage areas to the CPM for review and approval. The submittal shall include evidence from the City of Pittsburg that the plan conforms to the requirements of Section 18.80.035 of the zoning ordinance.

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 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-6 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-7 The project owner shall restore any landscaping that is disturbed during the construction or operation of the portion of the proposed fuel gas pipeline (Route 6) that would cross the City of Antioch.

The project owner shall submit a plan for restoring any landscaping disturbed during construction of the proposed fuel gas pipeline. 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.

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 landscaping 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 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 landscaping that the landscaping is ready for inspection.

VIS-8 During the first planting season following the start of project construction, the project owner shall implement a landscaping plan along the eastern side of Harbor Street in Pittsburg, to screen the proposed eastern electric transition station, the transmission poles, and the power plant from public views along 8th Street and along the east end of 9th Street and 10th Streets.

Protocol: The project owner shall submit to the CEC CPM for review and approval a specific plan describing its landscaping proposal, with a letter from the City of Pittsburg containing the City's review of the plan. The plan shall include, but not be limited to:

1. a detailed landscape plan, at a readable 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. Objectives shall include:

- To provide year-round screening. To meet this objective evergreen species shall be used.

- To provide a virtually complete screen. To meet this objective shrubs shall be planted between trees.

- To provide substantial immediate screening. To meet this objective trees at least 15 feet tall shall be used.

- To eventually provide screening at least 40 feet tall. To meet this objective, appropriate species shall be used.

- To use species that grow rapidly.

2. maintenance procedures, including any needed irrigation; and

3. a procedure for replacing unsuccessful plantings.

The plan shall propose species and spacing to achieve these objectives.

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.

No landscaping shall be installed before the plan is approved by the CPM.

The project owner shall notify the CPM when the landscaping has been installed and is ready for inspection.

Verification: At least 60 days prior to the start of project construction, the project owner shall submit the proposed screening 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 prepare and submit to the CPM a revised plan.

The project owner shall notify the CPM within 7 days after completing the landscaping that the landscaping is ready for inspection.

VIS-9 During the first planting season following the start of project construction the project owner shall implement a landscape plan along the railroad easement north of the west end of Eighth Street in Pittsburg, from the eastern boundary of the PG&E property to the eastern boundary of the Delta Diablo Sanitation District property, to screen the proposed western electric transition station and transmission poles from public views along Eighth Street and Beacon Street.

Protocol: The project owner shall submit to the CEC CPM for review and approval a specific plan describing its landscaping proposal, with a letter from Contra Costa County containing the County's review of the plan. The plan shall include, but not be limited to:

1. proposed tree and shrub species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives. Objectives shall include:

    - To provide year-round screening. To meet this objective evergreen species shall be used.

    - To provide a virtually complete screen. To meet this objective shrubs shall be planted between trees.

    - To provide substantial immediate screening. To meet this objective trees at least 15 feet tall shall be used.

    - To eventually provide screening at least 40 feet tall. To meet this objective, appropriate species shall be used.

    - To use species that grow rapidly.

2. maintenance procedures, including any needed irrigation; and

3. a procedure for replacing unsuccessful plantings.

The plan shall propose species and spacing to achieve these objectives

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.

No landscaping shall be installed before the plan is approved by the CPM.

The project owner shall notify the CPM when the landscaping has been installed and is ready for inspection.

Verification: At least 60 days prior to the start of project construction, the project owner shall submit the proposed landscaping 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 prepare and submit to the CPM a revised plan.

The project owner shall notify the CPM within 7 days after completing the landscaping that the landscaping is ready for inspection.

VIS-10 All transmission poles shall be a maximum of 75 feet in height.

Protocol: The project owner shall submit to the CEC CPM for review and approval final plans for the transmission poles, specifying their height.

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 transmission poles shall not be installed before the plan is approved. The project owner shall notify the CPM when the poles have been installed and are ready for inspection.

Verification: At least 60 days prior to the start of project construction, the project owner shall submit the plans to the CPM for review and approval.

If the CPM notifies the project owner that any revisions to the plans are needed before the CPM will approve the plans, within 30 days of receiving that notification the project owner shall prepare and submit to the CPM revised plans.

The project owner shall notify the CPM within 7 days after completing installation of the poles that the poles are ready for inspection.

D. NOISE

The construction and operation of PDEF and its linear facilities 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 consistent with 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 (L_{dn} or CNEL) are deemed normally acceptable and levels up to 70 dBA are conditionally acceptable. Staff's NOISE Table A1 and Table A2, replicated below, explain the definitions of these and other noise measurement terms. Increases of more than 5 dB 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. 28, pp. 171-172.)

1. Setting

PDEF is located in an industrial neighborhood. The nearest sensitive noise receptors are residences, located approximately 1,800 feet to the southwest along Harbor Street; 2,000 feet to the south of Santa Fe Avenue; and 3,000 feet to the west in Bay Harbor Park. (Ex. 28, p. 172.) Industrial activities and trains, heavy trucks, and automobile traffic associated with the industries are major contributors to the noise environment. (Ex. 1, p. 5.12-3.)

2. Potential Impacts and Proposed Mitigation

Construction activities are typically noisier than permissible under local noise ordinances; however the construction phase is temporary. (4/29 RT 41.) 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,[1] between 10:00 p.m. and 7:00 a.m. (4/29 RT 41; 56-57; Ex. 28, p. 173.) Applicant will comply with this restriction. (*Ibid.*)

[1] Steam blows can produce noise as loud as 130 dBA at a distance of 100 feet. Applicant will install mufflers on the steam blow piping to reduce this level to 110 dBA and restrict such steam blows to daytime hours. (Ex. 28, p. 174.) Applicant is also required to notify neighbors of impending steam blows. (*Ibid.*; Condition NOISE-5.)

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 28, p. 185.

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 28, p. 186.

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.

Applicant predicts that, based on noise levels produced by typical construction equipment, construction noise will drop to ambient noise levels at a distance less than 1,000 feet from the site. (Ex. 1, p. 5.12-7; Ex. 28, p. 173.) To ensure that sensitive receptors are not disturbed by onsite construction noise, Applicant will limit general construction activities to the hours between 6 a.m. and 6 p.m. (4/29 RT 56; Ex. 28, p. 173.) Applicant also agrees to implement a noise complaint process to respond to concerns about construction noise associated with the project. (4/28 RT 57; Condition NOISE-2.)

Noise during construction of the linear facilities will be noticeable at residences along these routes; however, the temporary nature of these activities will ensure that no single receptor will be inconvenienced for more than a few days. (Ex. 28, p. 174.) Applicant will comply with local noise ordinances to restrict noisy construction work to daytime hours. (*Ibid.*)

Cal/OSHA requires Applicant to implement measures to protect the 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 PDEF.[2] (4/29 RT 51; Condition NOISE-3.)

Applicant performed an ambient noise survey to predict the likely operational effects of PDEF on the surrounding community. To establish a baseline study, noise monitors were placed at 10 residential locations near the site. (Ex. 28, p. 172.) The nearest residential receptor at Harbor and East 9th Streets (Location 10) was monitored for 25 hours. (Ex. 1, p. 5.12-3; 4/29 RT 36, 39-40.) Applicant's survey showed noise levels ranging from 51 dBA L_{eq} at night to 69 dBA L_{eq} during the day at Location 10. (Ex. 1, p. 5.12-3; Ex. 28, p. 172.)

Based on this survey, Applicant initially proposed that PDEF could contribute noise levels of 65 dBA L_{dn} to the existing ambient daytime noise level of 68 dBA to remain below 70 dBA, the maximum conditionally acceptable level specified in the General Plan Noise element. (Ex. 28, p. 175.) Staff objected to this approach since PDEF expects to operate around the clock and there is significant variation in ambient noise between day and night. (*Ibid.*) Using a 24-hour average of noise levels gives more weight to short-term noise such as vehicles passing by. (*Id.,* p. 176.) As a baseload plant, PDEF will emit a steady noise, effectively increasing the background noise level. Staff, therefore, would compare power plant noise to the ambient background noise level as L_{90}. (*Ibid.*)

[2] 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.)

To meet Staff's concerns, Applicant incorporated several noise reduction measures in the project design.[3] (4/29 RT 38-39.) The result of adding these measures indicates that noise from plant operation will intersect the nearest sensitive receptors at a level of 47 dBA L_{90}. (4/29 RT 40.) The lowest nighttime L_{90} values measured at Location 10 were 45 dBA L_{90}. (*Ibid.*; Ex. 28, p. 176.) Adding 47 dBA to this level would result in an ambient noise level of 49 dBA, an increase less than the 5dB significance level expressed in the Pittsburg Noise Element. (4/29 RT 53-54.) Applicant has therefore agreed to a project design goal of 47 dBA L_{90}. (Ex. 7, p. 5.12-1; Condition NOISE-6.)

Applicant has agreed to install a 12-foot sound wall along East Santa Fe Boulevard and Columbia Street to mitigate traffic noise levels from the proposed Truck Bypass Road and to mitigate project-related noise. (4/29 RT 42-43.) Applicant's expert witness on noise testified that the sound wall would effectively decrease noise by 10 dBA, which is the equivalent of cutting the sound by half. (4/29 RT 44-45.) With the addition of the sound wall, traffic on the Truck Bypass Road if built, would not cause significant noise impacts to nearby residential receptors and project noise would be mitigated. (Ex. 29, p. 63; 4/29 RT 44.)

COMMISSION DISCUSSION

The evidence of record indicates that there are no controverted issues regarding the mitigation of potential noise impacts. Applicant addressed Staff's concerns regarding the project's operating noise levels by incorporating several noise reduction features into the project design. The Commission is persuaded that the mitigation measures contained in the Conditions of Certification will ensure that noise from PDEF 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 PDEF 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, by limiting construction to daytime hours in accordance with local noise control laws and ordinances, and by providing notice to nearby residences, as appropriate.

[3] These measures include upgraded silencers, mufflers, enclosures, shields, shrouds, cladding and barriers around noise producing features of the plant. Applicant also rotated the facility 180 degrees to place the HRSG stacks further from the nearest sensitive receptors. (Ex. 28, p. 176.)

3. As a baseline project, PDEF will operate around the clock with the potential to adversely impact the ambient noise nighttime levels at sensitive residential receptors.

4. The nearest sensitive residential receptors are located in an industrial area where the lowest nighttime L_{90} values measured at 45 dBA.

5. 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 47 dBA L_{90}.

6. This noise level of 47 dBA L_{90} represents an increase of less than5 dB, the significance level established in the City of Pittsburg Noise Element, and would therefore not result in adverse noise impacts to sensitive receptors.

7. Applicant will implement measures to protect workers from injury due to excessive noise levels by complying with pertinent Cal/OSHA regulations.

8. Applicant will construct a 12-foot sound wall to mitigate traffic noise associated with the Truck Bypass Road and to mitigate project-related noise.

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.

10. With implementation of the following Conditions of Certification, PDEF 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 within one 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.

Protocol: 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-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 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 7:00 a.m. to 6:00 p.m. If a modern, 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 expected time schedule for execution of the process.

NOISE-5 The project owner shall conduct a public notification program to alert residents within one-half mile of the site prior to the start of steam blow activities. 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: At least 15 days prior to the first steam blow(s), the project owner shall notify all residents within one-half mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. Within 5 days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6 Upon 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 a minimum. 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 that draws complaints. The noise contributed by the operation of the PDEF at the nearest noise-sensitive use, located on Harbor Street at a distance of 1, 800 feet from the plant, shall not exceed 47 DBA L_{90} under normal operating conditions. Steam relief valves shall be adequately muffled to preclude noise that draws complaints. If the results from the survey indicate that the power plant

noise levels are in excess of 47 dBA (L_{90}) measured at the property line of the nearest residence, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit. No single piece of equipment shall be allowed to stand out as a dominant source of noise.

Protocol: The measurement of power plant noise for purposes of demonstrating compliance with this Condition of Certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest residence. However, notwithstanding the use of this alternative method for determining the noise level, the character of plant noise shall be evaluated at the nearest residence to determine the presence of pure tones or other dominant sources of plant noise.

Verification: Within 30 days after first achieving an output of 80 percent or greater of rated output, the project owner shall conduct the above described noise survey. 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 hazardous 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 make the report available to OSHA upon request.

NOISE-8 Noisy construction work 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

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 COMPLAINT RESOLUTION FORM

PITTSBURG DISTRICT ENERGY FACILITY PROJECT (98-AFC-1)
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.)

E. SOCIOECONOMICS

The socioeconomics analysis evaluates the effects of project-related population changes on local schools, medical and protective services, public utilities, and other public services, and the fiscal and physical capacities of local government to meet these needs. The analysis also considers whether project-related activities raise concerns relevant to the issue of environmental justice.

The construction phase of project development is typically the focus of the analysis due to the concentrated influx of workers into the area during that period. Socioeconomic impacts would be 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 site is located in the eastern industrialized portion of the City of Pittsburg. Applicant's demographic study area included Alameda, Solano, San Joaquin, and Contra Costa Counties surrounding the City of Pittsburg: (4/28 RT 194.) Numerous communities in these counties are located within a reasonable commuting distance to the project, which is defined as one-hour, one-way commutes for construction workers and operations employees. (Ex. 1; p. 5.10-1.)

2. Employment

Project construction will begin in mid-1999 and end in mid-2001 for a total of 20 months. (Ex. 1, p. 5.10-6.) Total peak employment, including construction workers and engineering staff, will be about 299 persons in month 14. (*Ibid.*) Following completion of construction, the project will be staffed by 20 full and part-time employees, including construction workers, engineers, equipment operators and security staff. (*Ibid.*)

SOCIOECONOMICS Table 1, replicated from Staff's testimony, shows project construction requirements during the anticipated 20-month construction period. (Ex. 28, p. 306.) SOCIOECONOMICS Table 2, replicated from Staff's testimony, shows the number of available construction workers by craft in the study area. (*Id*., p. 307.)

Based on these data, Applicant and Staff concluded that there is an adequate labor pool in the four-county study area to construct the project. (Ex. 1, p. 5.10-7; Ex. 28, p. 301.) It is anticipated that most of the construction workers would commute to the job site from their existing residences and would not relocate to Pittsburg or Antioch. (*Ibid.*)

California Unions for Reliable Energy (CURE), an intervenor in this proceeding, sponsored the testimony of Greg Feere, Chief Executive Officer for the Contra Costa Building Construction Trades Council. (Ex. 34.) Mr. Feere testified that the Contra Costa Building and Construction Trades Council has entered into a project labor agreement with Enron. (4/29 RT 209.) The Trades Council sponsors an apprenticeship program for worker training in the building trades. (*Id*., p. 210; Ex. 38.) This ensures that union construction workers have the skills and knowledge to perform quality work. (*Ibid.*) The witness testified that thousands of skilled workers are available within commuting distance of the project. (4/29 RT 214.) To the extent possible, the Trades Council will accommodate employment requests from local workers in the Pittsburg/Antioch area. (*Id.*, p. 213.)

3. Potential Impacts

Since most construction workers are expected to commute to the job site, the potential for adverse socioeconomic impacts to the Pittsburg-Antioch community is insignificant. (4/29 RT 200.) Qualified plant operation employees would also be available within reasonable commuting distance. (Ex. 1, p. 5.10-8.)

a. Housing and Schools

The project would not place a demand on local housing resources because no major influx of non-local worker households is expected. (*Ibid.*) Similarly, no significant impacts to schools are expected to occur; typically, construction workers do not relocate their families due to the short duration of the various construction activities.[1] (*Ibid.*) PDEF will pay a one-time developer fee, assessed by the City of Pittsburg, that includes $6,138 for the Pittsburg Unified School District. (Ex. 28, p. 308.) Public comment was presented by Reed McLaughlin of the Pittsburg Unified School District. The District disputed the data presented by Applicant and Staff. (5/26 RT 24-27.) The School District submitted data showing that its schools are overcapacity and that new school facilities are needed to accommodate projected enrollment growth over the next

[1] A maximum of 25 contractor staff households could relocate to the project area since the construction contractor will be onsite during the 20-month construction period. Applicant's analysis shows that 3,000 housing units are available at any given time, and schools in the Pittsburg-Antioch area have the capacity to absorb children of in-migrating employees. (Ex. 1, p. 5.10-8.) Temporary housing in motels or weekly rentals can be accommodated by the existing vacancy rates in the area.

SOCIOECONOMICS Table 1
Construction Requirements By Month

TRADE	1999					2000												2001			
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Totals
Carpenters						10	16	16	16	16	16	18	18	12	8	3					149
Laborers	6	6	6	6	6	26	26	48	61	61	50	50	56	61	50	44	25	25	8	4	625
Ironworkers						16	26	32	34	38	34	18	14	14	5	3	3				237
Finishers						4	8	14	18	6	6	6	6	6	6	3					83
Operators	5	10	10	22	22	22	22	22	22	20	20	21	19	18	18	16	13	6	3	1	312
Pipefitters									15	32	32	48	61	65	53	53	33	29	24	18	463
Electricians			2	2	2		17	17	17	17	24	30	39	49	55	55	57	53	30	20	486
Millwrights											6	6	6	15	15	11	11	8	8	3	89
Boilermakers								20	25	25	25	25	25	9	7	6	6				173
Insulators															12	25	48	35	20	4	144
Painters									6	6	6	12	6	2	4	4	4	4	10	10	74
Teamsters	3	4	2	6		3	8	8	9	8	8	6	6	6	9	8	5	4	1	1	105
Others								25	17	11	22	16	6	12				25	21		155
Craft Total	14	20	20	36	30	81	123	202	240	240	249	256	262	269	242	231	205	189	125	61	3,095

Source: PDEF; Exhibit 28, p. 306 revised

SOCIOECONOMICS TABLE 2
Available Construction Workers by Craft

Trade	Project Peak Workforce Numbers	Total Workers 1994/1995	Total Workers 2001/2002	Contra Costa County		Alameda County		San Joaquin County		Solano County		Marin County	
				1995	2002	1995	2002	1995	2002	1995	2002	2002	2002
Carpenters	18	7840	8740	2110	2420	3360	3790	830	880	830	860	710	790
Laborers	61	3990	4750	1190	1460	1780	2140	240	270	410	450	370	430
Ironworkers	38	1930	1760	260	300	1280	1140	160	170	190	110	40	40
Finishers	18	1970	2310	530	650	660	790	260	280	420	470	100	120
Operators	22	1170	1100	470	550	180	200	90	100	210	220	30	30
Pipefitters	65	2850	3160	820	980	1180	1280	340	370	600	340	170	190
Electricians	57	5080	5300	1680	1910	2050	2220	440	450	630	420	280	300
Millwrights	15	530	480	200	150	150	180	130	120	50	50	N/C	N/C
Boilermaker	25	120	100	120	100	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
Insulators	48	660	770	110	150	280	370	70	80	200	170	N/C	N/C
Painters	12	3110	3450	770	960	1380	1470	290	310	300	290	370	420
Teamsters	9	13130	13510	2590	2700	5720	5580	3010	3220	1210	1370	600	640

Source: US Greiner Woodward Clyde; Employment Development Department, Labor Market Division; Exhibit 28, p. 307.

20 years to the year 2021. (Letter to the Commission from Superintendent Robert Newall dated May 25, 1999.)

b. Public Services

Impacts to utilities, emergency services, or other public services would be insignificant. (Ex. 1, p. 5.10-8.) Police and medical emergency services have the capacity to respond to onsite emergencies during project construction and operation. (Ex. 28, p. 305.)

Staff asserted that the developer fee assessed by the City of Pittsburg includes a one-time fire facilities fee for the Contra Costa Fire Protection District. (Ex. 28, p. 305.) This assertion was challenged by the Fire District explaining that "pass through" funding will not be provided because the project site is within a redevelopment area. (6/15 RT 10 et seq.) After the record was closed on this topic, the District indicated that it could not provide an acceptable level of fire protection to PDEF and the prospective Delta Energy Center (DEC) because its existing ladder truck and Type 1 fire engine are obsolete and need to be replaced. The Fire District has requested funding from PDEF and DEC to replace the equipment. (*Ibid.*)

The Committee directed Staff to conduct a public workshop to resolve this issue. The Committee will entertain a motion to reopen the record, if necessary. Pending resolution, however, this Decision shall be based on the evidence of record.

Applicant will submit an emergency response plan (described in the WORKER SAFETY section of this Decision) to the Contra Costa Fire Protection District for approval.

d. Environmental Justice

Mr. Jim MacDonald presented public comment objecting to Staff's conclusion that an environmental justice analysis does not apply in this case. (6/15 RT 52 et seq.) The record indicates that Staff performed a demographic analysis based on census data to determine whether environmental justice should be a factor. Staff determined that there is not a sufficient minority population to constitute a concern for environmental justice.[2] (4/29 RT 206-207.)

[2] Staff relied on federal Guidelines established by the U. S. Environmental Protection Agency (EPA) that provide a two-step screening process to determine if an environmental justice analysis is required. According to the Guidelines, such an analysis should be conducted if the minority population is greater than 50 percent and if potential impacts would fall disproportionately on that minority population. (Ex. 28, pp. 297-298.) The census data did not show the minority population exceeding 50 percent in the project vicinity. (*Ibid*.)

e. Payroll

PDEF's construction payroll is about $26.4 million. The annual operation payroll is expected to be about $1.4 million. (Ex. 1, p. 309.) According to Applicant, the economic impacts of the project will be beneficial due to the income multiplier effect of the payroll and local purchases of materials, as well as the accrual of sales tax revenues.[3] (4/29 RT 195.)

f. Capital Costs

PDEF's capital cost will be $200-$300 million. County assessment is expected to generate $2-$3 million a year in property taxes. (Ex. 28, p. 308.) Since the project is located in a redevelopment area, property tax revenues of about $1 million would be distributed to the Pittsburg Redevelopment Agency. (Ex. 1, p. 5.10-9a.)

COMMISSION DISCUSSION

It is clear from the evidence that PDEF will bring significant economic benefits to Contra Costa County and specifically, the City of Pittsburg. Revenues from property taxes, construction and operation payrolls, the local purchase of construction materials, and maintenance expenditures all serve to stimulate the economy. Local services will not be burdened. If necessary, the Applicant will mitigate the costs of fire protection services to ensure that project-related emergencies do not compromise other emergency activities.

With respect to the Pittsburg Unified School District's concern that the analysis of potential impacts to schools was based on inaccurate data, the Commission finds that even if the data were inaccurate, project-related impacts to schools would be insignificant. The evidence establishes that the majority of workers will commute to the site. Thus, relocation of families with school age children to Pittsburg is not expected to occur with any statistical significance. Moreover, the 20-year forecast provided by the District does not appear to be relevant in this case where the construction phase will be concluded in two years, in the year 2001.

Evidence of the labor agreement between Enron and the Contra Costa Building and Construction Trades Council ensures that reliable and skilled workers will construct and operate the project. One of the more beneficial aspects of this agreement is the Council's apprenticeship program that trains new workers to learn valuable skills at no cost to taxpayers. The Council will provide workers within commuting distance to minimize impacts to the Pittsburg-Antioch area and to the extent possible, recruit workers from the local area.

[3] As part of project development, Enron and the City of Pittsburg entered into an Alliance and Development Agreement by which project profits will be distributed 60 percent to Pittsburg and 40 percent to Enron. (Ex. 10.)

The Commission is persuaded that Staff used appropriate data, in accordance with EPA Guidelines, to determine that an environmental justice analysis is not warranted in this case. While we recognize Mr. MacDonald's concerns about adverse health effects, the evidence of record establishes that any potential adverse impacts of the project will be mitigated to insignificant levels.

The Commission is persuaded that PDEF will not cause adverse socioeconomic impacts to the communities identified in the four-county study area.

FINDINGS AND CONCLUSIONS

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

1. The project will generate $2-$3 million dollars a year in property tax revenues to Contra Costa County. Approximately $1 million per year would be distributed to the Pittsburg Redevelopment Agency.

2. The City of Pittsburg and Enron have entered into an Alliance and Development Agreement that allocates project profits at 60 percent for Pittsburg and 40 percent for Enron.

3. The construction payroll will be about $26.4 million and the operation payroll will be about $1.4 million.

4. PDEF will pay statutory developer fees for the "in lieu" building permit to the City of Pittsburg that will provide one-time fees to the Pittsburg Unified School District.

5. The Contra Costa Building and Construction Trades Council entered into a project labor agreement with Enron to provide skilled construction labor for the project.

6. There is a surplus of skilled construction workers available within one-hour commuting distance to the project. To the extent possible, the Trades Council will accommodate employment requests from local workers in the Pittsburg/Antioch area.

7. Since most construction workers and operations staff are likely to commute from their residences, no major influx of non-worker households is expected.

8. The project will not result in significant adverse impacts to socioeconomic concerns such as employment, housing, schools, medical and emergency services, and police and fire protection.

9. The project will provide economic benefits to the Pittsburg-Antioch area.

10. There is no evidence of environmental justice issues in this case.

11. Implementation of the Conditions of Certification below ensures that PDEF will not impose any significant adverse socioeconomics impacts.

12. 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 Alameda and Solano 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 development fees for the Pittsburg Unified School District and the Contra Costa Fire Department, 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.

APPENDIX A:

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

AIR QUALITY

FEDERAL

The Federal Clean Air Act 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 the 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 40 CFR, part 70. A Title V permit contains all of the requirements specified in different air quality regulations which affect an individual project.

EPA has reviewed and approved the Bay Area Air Quality Management District 's (BAAQMD) regulations and has delegated to 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 Air Resources Board 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 AFC presents a summary of the current national and state ambient air quality standards.

LOCAL

The proposed facility is subject to various District 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 complete discussion of the applicable rules and regulations can be found in section 5.2.2.4 Regulatory Setting of the Application for Certification (AFC). An in-depth discussion at how the PDEF will comply with all applicable rules and regulations will be provided in the District's Preliminary Determination of Compliance (PDOC), which is to be issued in early March, 1999.

HAZARDOUS MATERIALS

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 and the United States Environmental Protection Agency (EPA) an 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. A further discussion of these requirements is provided in the **Facility Design** portion of this document.

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) 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

The PDEF will lie in a heavily industrialized area near the northern edge of the City of Pittsburg. A portion of the electric interconnection line will pass through unincorporated portions of Contra Costa County, while portions of the fuel gas line, reclaimed water supply line and wastewater return line will lie within the City of Antioch (PDEF 1998a, 1998k).

CITY OF PITTSBURG GENERAL PLAN NOISE ELEMENT

The General Plan Noise Element identifies those noise levels compatible for 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] 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 PDEF. 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 PDEF, 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.

SOCIOECONOMICS

CALIFORNIA GOVERNMENT CODE §§ 53080, 65955-65997

The code includes provisions for levies against development projects near schools. The administering agency is the Pittsburg Unified School District.

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.

Environmental Justice Screening Analysis

For all siting cases, Energy Commission staff will follow the federal guidelines' two-step screening process. The process will assess:

whether the potentially affected community includes minority and/or low-income populations; and

whether the environmental impacts are likely to fall disproportionately on minority and/or low-income members of the community.

> Depending on the outcome of the screening process, local community groups will be contacted to provide the Energy Commission with a fuller understanding of the community and the potential environmental justice issues. In addition, local community groups will be asked to help identify potential mitigation measures.

SOCIOECONOMICS Table 1 contains demographic information for census tracts within 1.5 miles of the project site. Data for this table were taken from the 1990 US Census Data, as specified in the USEPA Guidelines (guidelines) for use in an environmental justice analysis (USEPA 1996). Energy Commission staff is aware that data from the 1990 Census may not accurately represent the 1998 population. Census estimates and projections are done only on a countywide basis and the most recent data is for the year 1994 (Heim, Doche, Choi, Scheuermann 1998). There are inherent problems with using countywide population projections for 1994. For purposes of analyzing environmental justice issues, the PDEF study area comprises certain census tracts within Pittsburg. Using countywide data could artificially inflate or dilute the presence of affected minority and/or low-income populations. It is for this reason that Energy

Commission staff is using demographic data from census tracts within 1.5 miles of the PDEF to determine the presence of minority and / or low-income populations.

Energy Commission staff is aware that population shifts since the 1990 US Census may indicate the presence of affected minority and/or low-income populations in the PDEF area. If members of the community believe there may be potential environmental justice issues, Energy Commission staff will work with the community using non-traditional data gathering techniques, including outreach to community-based organizations to identify distinct minority and/or low-income populations living within the PDEF area.

According to the guidelines, a minority population exists if the minority population percentage of the affected area is fifty percent or greater than the affected area's general population. Based on the screening process for environmental justice, information in **SOCIOECONOMICS Table 1** indicates that the minority population of the affected area is not greater than fifty percent of the general population. Therefore, because the minority population is less than fifty percent, there appears to be no potential minority population based environmental justice issues in the PDEF area.

The poverty threshold for a family of four persons was $12,674 (1990 US Census Data). To determine the number of persons below the poverty level, Energy Commission staff reviewed data from the 1990 US Census: Poverty Status By Age; Universe: Persons for whom poverty status is determined (the aggregate number of persons five years and under to seventy-five years and over). **SOCIOECONOMICS Table 2** indicates that the total number of people living below the poverty level is 7,957, which is about 12 percent of the total population of the census tracts within 1.5 miles of the PDEF site.

As stated above, a minority population exists if the minority population percentage of the affected area is fifty percent or greater than the affected area's general population. Because the guidelines do not give a percentage of the population as a threshold to determine the existence of a low-income population, Energy Commission staff used the fifty percent rule as required for minority populations. Because the low-income population is less than fifty percent, there appears to be no potential low-income population based environmental justice issues in the PDEF area.

SOCIOECONOMICS Table 1

Demographic Profile for Census Tracts Within 1.5 Miles of the PDEF Site

Census Tract	Hispanic Origin	White	Black	American Indian	Asian Pacific Islander	Other Race	Total by Tract
3090	500	756	729	7	79	0	2,171
3100	1,837	1,244	696	27	145	10	3,959
3110	1,749	1,228	663	17	451	5	4,024
3120	93	555	1,324	0	241	16	2,229
3131-01	1,258	3,647	962	35	620	18	6,540
3131-02	593	2,117	641	29	363	0	3,743
3131-03	816	3,254	500	23	463	4	5,060
3132-01	1,693	2,973	1,299	34	1,191	0	7,120
3132-02	1,604	4,169	768	57	997	0	7,595
3050	1,763	3,695	158	88	139	22	5,865
3072-01	558	2,141	168	14	158	6	2,487
3072-02	802	2,565	287	27	135	26	3,842
3072-04	614	3,020	51	45	130	3	3,813
3072-05	904	4,876	218	33	289	0	6,320
Totals	**14,784**	**36,240**	**8,394**	**436**	**5,329**	**110**	**64,768**
% of Totals	23%	56%	13%	<1%	8%	<1%	100%

Source: 1990 US Census Data, Statistical Information on Population

SOCIOECONOMICS Table 2
Percentage of Persons Living Below the Poverty Level Within 1.5 Miles of the PDEF Site

Census Tract	Number of Persons in Tract	Persons Below Poverty Level
3090	2,171	437
3100	3,959	806
3110	4,024	551
3120	2,229	445
3131-01	6,540	611
3131-02	3,743	142
3131-03	5,060	203
3132-01	7,120	702
3132-02	7,595	705
3050	5,865	1,228
3072-01	2,487	331
3072-02	3,842	877
3072-04	3,813	101
3072-05	6,320	818
Totals	**64,768**	**7,957**

Source: 1990 US Census Data, Statistical Information on Population

TRANSMISSION SYSTEM ENGINEERING

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 PDEF. Also of major importance to the PDEF 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 determine if the participant will be paid more or less than, for instance, the generating units dispatched net power output (ISO 1998e, ISO 1998f).

WORKER SAFETY

FEDERAL

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

29 C.F.R. §1910.120 (HAZWOPER Standard) Defines the regulations for Hazardous Waste Operations and Emergency Response. This section covers the clean-up operations, hazardous removal work, corrective actions, voluntary clean-up operations, monitoring, and emergency response required by Federal, state, and local agencies of hazardous substances that are present at controlled and uncontrolled hazardous waste sites.

29 C.F.R. §§1910.1 - 1910.1500 (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)

Title 8, California Code of Regulation, §5192 (HAZWOPER Standard) Defines the regulations for Hazardous Waste Operations and Emergency Response. This section covers the clean-up operations, hazardous removal work, corrective actions, voluntary clean-up operations, monitoring, and emergency response required by Federal, state, local agencies of hazardous substances that are present at controlled and uncontrolled hazardous waste sites.

LOCAL

Uniform Fire Code (UFC). The uniform 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 Standards. This is a companion publication to the UFC and contains standards of the American Society for Testing and Materials and of the National Fire Protection Association.

California Building Code. (Cal. Code Regs., tit. 24, §501 et seq.) 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.

WASTE MANAGEMENT

FEDERAL

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

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

RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

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.

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

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE (GENERAL BACKGROUND LORS)

PUBLIC RESOURCES CODE § 40000 ET SEQ. (CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT OF 1989)

These sections, comprising Division 30 of the Public Resources Code, regulate solid waste management in California and created the California Integrated Waste

Management Board. The Board is required to adopt and revise minimum standards for solid waste handling and disposal, including design, operation, maintenance and ultimate reuse of solid waste processing or disposal facilities.

California Water Code § 13000 et seq. (Porter-Cologne Water Quality Control Act)

This law regulates the discharge of wastes which could affect water quality and is designed to protect surface and groundwaters of the state against contamination and loss of beneficial use. The Act requires the State Water Resources Control Board to classify wastes according to the risk of impairing water quality and the types of disposal sites according to the level of protection provided for water quality. Regional boards issue waste discharge requirements addressing the nature and limiting the release of any wastes which could degrade waters of the state.

Title 14, California Code of Regulations, § 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)

These regulations set forth 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.

STATE (PROJECT SPECIFIC LORS)

California Health and Safety Code § 25100 et seq. (Hazardous Waste Control Act of 1972, as amended).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

Title 22, California Code of Regulations, § 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.

CULTURAL

FEDERAL

Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, § 431-433) and subsequent related legislation, policies, and enacting responsibilities.

National Environmental Policy Act (NEPA): Title 42 United States Code, Section 4321-4327 requires federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.

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

Please note: The following discussion of California law related to the California Environmental Quality Act (CEQA) was revised in late 1998 and the revised sections, text, and requirements have not yet been incorporated into this analysis.

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 archaeologic or paleontologic 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 the disposition of such materials.

California Environmental Quality Act (CEQA): Public Resources Code sections 21083.2, 21084.1, *et seq*; require 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, Section 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 prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group;…, site, except as part of a scientific study."

Public Resources Code, Section 21083.2. 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, such resources must be avoided; if they can't be avoided, mitigation measures shall be required. The law also discusses excavation as mitigation; discusses the cost of mitigation for several types of projects; sets time frame

for excavation; defines “unique and non-unique archaeological resources”; provides for mitigation of unexpected resources; and sets financial limitations for this section.

Public Resources Code, Section 21084.1: indicates that a project may have a significant effect on the environment if it causes a substantial change in the significance of a historic resource; the section further describes what constitutes a historic resource and a significant historic resource.

Guidelines for the Implementation of the California Environmental Quality Act,

Appendix K specifically addresses effects on historic and prehistoric archaeological resources, in response to problems that have arisen in the application of CEQA to these resources.

Penal Code, Section 622.5: Anyone who damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

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.

Public Resources Code, Section 5097.98. If the county coroner determines that the remains are Native American, the coroner is required to contact the Native American Heritage Commission, which is then required to determine the “Most Likely Descendant” to inspect the burial and to make recommendations for treatment or disposal.

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 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 sets forth goals related to cultural resources: The relevant sections are as follows:

D. 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.

E. To encourage the preservation of varied architectural styles which reflect the cultural, social, economic, political, and architectural phases of the city's history.

F. "To provide for the educational and cultural enrichment of this and future generations by fostering knowledge of our heritage".

The General Plan does not identify any specific measures or requirements for mitigation of potential impacts (Pittsburg 1998).

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 1999).

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 PDEF and its related facilities will be located in portions of Pittsburg, Antioch and Contra Costa County. Staff reviewed the land use planning documents listed below for goals, policies and regulations relevant to the proposed project. Only those goals, policies and regulations pertinent to this land use analysis are included here.

PITTSBURG GENERAL PLAN

The City of Pittsburg (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. General Plan policies relevant to the project include:

<u>Land Use Element, Section 2.8 Industrial Development:</u>

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 Piitsburg'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."

Public Facilities, Institutions, and Utilities Element: Guiding Policy 5.3J requires "the undergrounding of all utility lines adjacent to new construction as a condition of development."

Traffic and Circulation Element: Guiding Policy 6.3D seeks to "designate truck routes, and discourage unnecessary through traffic in residential areas through circulation system design and planning."

DOWNTOWN SPECIFIC PLAN

A portion of the proposed 115 kilovolt (kV) transmission line (interconnecting the PDEF to an existing substation at the PG&E Pittsburg Power Plant) is within the area covered by the Downtown Specific Plan (1986). General Plan land use designations for areas within the Downtown Specific Plan that are traversed by the transmission line include Low Density Residential and Medium Density Residential.

Chapter 3, Downtown Residential Area – Area II: This portion of the Specific Plan includes residentially 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. Section 3.3B allows "public utility …structures and uses" on approval of a use permit.

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. The following provisions of the Pittsburg Zoning Ordinance are applicable to the project:

Section 18.08.100 classifies a power plant as a "heavy manufacturing industrial use."

Section 18.54.010 allows heavy manufacturing industrial uses in a General Industrial District on approval of a use permit.

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%

Section 18.54.020 requires design review of all projects proposed within a General Industrial District. The information required for design review is listed in section 18.36.210.

Section 18.54.100 provides an additional height allowance for structures in a General Industrial District equal to the number of feet the structure exceeds all minimum yard requirements, but only up to a maximum of 75 feet.

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 without regard to building height limitation.

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.

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. The following General Plan policies are relevant to the project:

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.

Community Design Goal – Policy #6: Where not constrained by security or safety concerns, utility easements should be developed as linkages between sections of the City through the provision of bikeways, pedestrian pathways as well as locations for passive recreation activities near residential areas.

Health and Safety Goal – Policy #3 (Bullet #6): New pipelines and other channels carrying hazardous materials shall avoid residential areas and other immobile populations to the greatest extent possible.

ANTIOCH ZONING ORDINANCE

The current City of Antioch Zoning Ordinance was adopted on November 8, 1994. The following provisions of the Antioch Zoning Ordinance pertain to the project:

- New pipelines and other channels carrying hazardous materials shall avoid existing and approved residential areas and other immobile populations to the greatest extent possible. (P5.19)

- 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. (P5.22)

CONTRA COSTA COUNTY GENERAL PLAN

The Contra Costa County General Plan (1995 – 2010) was adopted on July 1996. The following goals and policies are relevant to the project:

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.”

CONTRA COSTA COUNTY ZONING ORDINANCE

Railroad Corridor Combining District (Ordinance No. 87-19): Ordinance No. 87-19 added a “Railroad Corridor Combining District” overlay zone to the existing zoning designations of all railroad rights-of-way owned or occupied by Santa Fe, Southern Pacific, Union Pacific, and Bay Point-Clayton within the unincorporated area of the County. The ordinance states:

> “All land uses that were previously allowed under the existing, underlying zoning designations along the railroad right of way are allowed under this ‘Railroad Corridor Combining District’ Ordinance, provided that no new land uses and/or structures, including residences and pipelines for the transmission of oil, gas, water or other substances shall be established, and no such uses and/or structures presently existing shall be substantially expanded or altered, or demolished, without first having been granted a conditional use permit, through procedures established in the County Ordinance Code.”

PALEONTOLOGICAL

STATE

California Environmental Quality Act (CEQA) Guidelines: California Code of Regulations, Section 15000, *et seq*, Appendix G (V)(c), 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."

In addition to the CEQA guidelines, the Energy Commission has regulations pertinent to paleontological resources assessment and management. These regulations are found in Title 20, California Code of Regulations, Division 2, Chapter 5, Article 6, Appendix B, (g)(16).

STANDARDS

The Society of Vertebrate Paleontologists (SVP) Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures dated 1996. The Standard Procedures calls for resource assessment and mitigation program to be developed by a paleontologist.

POWER PLANT RELIABILITY

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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 Energy Commission must make findings as to the manner in which the PDEF is to be designed, sited and operated to ensure safe and reliable operation (Cal. Code Regs., tit. 20, § 1752(c)). Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system.

BIOLOGY

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 provides protection for migratory birds.

STATE

California Native Species Conservation and Enhancement Act, (Fish & G. Code, §1755 et seq.), mandates as state policy, maintenance of sufficient populations of all species of wildlife and native plants and the habitat necessary to insure 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), 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, 5515 prohibit the taking of birds, mammals, reptiles and amphibians, and fishes 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.

POWER PLANT EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires that an environmental analysis be completed prior to determining whether to approve an Application for Certification (AFC) of a power plant. This analysis must include an identification of the significant effects of a project on the environment, feasible mitigation measures, and alternatives to the project (Pub. Resources Code, § 21002.1).

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)). The Guidelines further require consideration of 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, Appendix F).

WARREN-ALQUIST ACT

The Warren-Alquist Act requires the submittal to the Energy Commission of an NOI prior to filing an AFC (Pub. Resources Code, § 25502); this NOI process commonly takes twelve months. Exemption from the NOI process is allowed for certain projects, including cogeneration plants (Pub. Resources Code, § 25540.6(a)(1)). Cogeneration, in turn, is defined in terms of efficiency standards (Pub. Resources Code, § 25134).

LOCAL

No local or county ordinances apply to power plant efficiency.

FACILITY DESIGN

The applicable Laws, Ordinances, Regulations, and Standards (LORS) proposed by the applicant are contained in the Application for Certification, in Section 7 and Appendices C through H (PDEF 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;
- NEMA-National Electrical Manufacturers Association.

NEED CONFORMANCE

Under state law, the Energy Commission cannot certify a proposed electric generating facility unless it finds that the project conforms with the Integrated Assessment of Need contained in the Energy Commission's most recent *Electricity Report.* This analysis examines whether the Pittsburg District Energy Facility (PDEF) conforms to the Energy Commission's Integrated Assessment of 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 of 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 CRITERIA

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 criteria governing this determination are contained in the *1996 Electricity Report (ER 96)*, and are 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."

PUBLIC HEALTH

STATE

California Health and Safety Code §§ 39650 et seq. mandate the Air Resources Board and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

California Health and Safety Code § 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.

TRANSMISION LINE SAFETY AND NUISCANCE

FEDERAL

AVIATION SAFETY

Any hazard to area aircraft relates to the potential for collision with the line in the navigable air space. The applicable LORS are intended to ensure the distance and visibility necessary to avoid such collision.

Title 14, Part 77 of the Federal Code of Regulations (CFR), “Objects Affecting the Navigation Space”. Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a “Notice of Proposed Construction or Alteration” is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that the structure is located to avoid any significant hazards to area aviation.

FAA Advisory Circular (AC) No. 70/460-2H, “Proposed Construction and or Alteration of Objects that May Affect the Navigation Space”. This circular informs each proponent of a project that could pose an aviation hazard of the need to file the “Notice of Proposed Construction or Alteration” (Form 7640) with the FAA.

FAA AC No. 70/460-1G, “Obstruction Marking and Lighting”. This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

Transmission line-related radio-frequency interference is one of the indirect effects of line operation as produced by the physical interactions of line electric fields. The level of such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts could be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices producing force fields which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps

between the conductor and insulators or metal fittings. When generated, such noise manifests as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement. Since electric fields cannot penetrate the soil and other objects, underground lines do not produce the radio noise associated with overhead lines.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated in the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

STATE

General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

GO-128 “Rules for Construction of Underground Electric Supply and Communications Systems”. Provisions of this order establish requirements and minimum standards for the safe construction of underground AC power and communications circuits.

AUDIBLE NOISE

As with radio noise, any audible noise from a transmission line usually results from he action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying or hissing sound or hum. Since (as with communications interference), the noise level depends on the strength of the line electric field, the potential for occurrence can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during wet weather and from lines of 345 kV or higher. It therefore, is generally not expected at significant levels from lines of less than 345 kV. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way. There are no design-specific regulations to limit the audible noise from transmission lines. As with radio noise, such noise is limited instead through design and maintenance standards established from industry research and experience as effective without significant impacts on line safety, efficiency maintainability and reliability. All high-voltage lines are designed to assure compliance.

FIRE HAZARDS

The fires addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees.

General Order 95 (GO-95), CPUC, “Rules for Overhead Electric Line Construction”. This order specifies tree trimming criteria to minimize the potential for power line-related fires.

Title 14 Section 1250 of the California Code of Regulations, “Fire Prevention Standards for Electric Utilities”. This code specifies utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks that are addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

GO-95, CPUC, Rules for Overhead Line Construction”. These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements usually ensures the safety of the general public and line workers.

Title 8, CCR, Section 2700 et seq., “High Voltage Electric Safety Orders”. These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.

National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. Provisions in this part of the code specify the national safe operating clearances applicable in areas where the line might be accessible to the public. Such requirements are intended to minimize the potential for direct or indirect contact with the energized line.

LOCAL

There are no local laws or regulations specifically aimed at the physical structure or dimensions of electric power lines to limit their obstruction or hazardous shock hazards, or eliminate the interactive effects of their electric or magnetic fields. All the noted LORS are implemented industry wide to ensure that lines are uniformly constructed to reflect existing health and safety information while ensuring efficiency and reliability.

TRAFFIC AND TRANSPORTATON

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 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, regulates 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, regulates the transportation of explosive materials.

California Vehicle Code, sections 32000-32053, regulates the licensing of carriers of hazardous materials and includes noticing requirements.

California Vehicle Code, sections 32100-32109, establishes special requirements for the transportation of inhalation hazards and poisonous gases.

California Vehicle Code, sections 34000-34121, establishes 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, regulates the safe operation of vehicles, including those which are used for the transportation of hazardous materials.

California Vehicle Code, sections 2500-2505, authorizes the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.

California Vehicle Code, sections 13369, 15275 and 15278, addresses the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, these sections require the possession of certificates permitting the operation of vehicles transporting hazardous materials.

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, regulates 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., addresses 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:

Construct an east-west arterial collector system to serve the industrial areas east of downtown.

Discourage through traffic on local roadways.

Designate truck routes, and discourage unnecessary through-traffic in residential areas through construction system design and planning.

Maximize the carrying capacity of arterial roadways by controlling the number of intersections and driveways and minimize residential access.

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 proposed project and linear facilities are located in Pittsburg, some linear facilities (reclaimed water line [s] and fuel gas pipelines) cross into the jurisdiction of the City of Antioch in two locations: 1) north of the Pittsburg-Antioch Highway at the entrance to the Delta Diablo Sanitation District Waste Water Treatment Plant and, 2) east of Los Medano Drive.

RAILROADS

The Union Pacific Railroad Company requires a Right of Entry Form for any work or testing on their property. Additional permitting would be required for a permanent right-of-way for any applicable utility crossings.

VISUAL

FEDERAL AND STATE

The proposed project, including the linear facilities, is located on private lands and is thus not subject to federal land management requirements. Likewise, no roadway in the project vicinity is a designated or eligible State Scenic Highway. Therefore, no federal or state regulations pertaining to scenic resources are applicable to the project.

LOCAL

The proposed power plant and most of the linear facilities would be located in the City of Pittsburg. A portion of two linear facilities would be in the City of Antioch. These include the southeastern terminus of the fuel gas pipeline (Route 6) and the reclaimed water pipeline segments near the Delta Diablo Sanitation District facility. The western section of the proposed transmission line to the PG&E Pittsburg Power Plant substation crosses land under the jurisdiction of Contra Costa County.

CITY OF PITTSBURG

General Plan

Five policies within the City of Pittsburg General Plan (1988) are relevant to the project. Four are in the Land Use Element, and one is in the Parks and Recreation Element, as described below.

2. Land Use Element

2.1 Community Image

Guiding Policies

E. Preserve the feel of a city surrounded by open space, and preserve corridors to the hills and to the waterfront.

Implementing Policies

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

Pittsburg's zoning ordinance includes the following requirements related to visual resources.

Section 18.54.105: 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 18.80.035: 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 must 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 to comply with the Sign Regulations (Title 19).

Section 18.82.045: This section requires that each exterior of a building or other structure must 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

Only one goal in the City of Antioch General Plan (Antioch 1988) is relevant to the protection and enhancement of visual resources. Community Design Policy 2 states that "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."

CONTRA COSTA COUNTY

General Plan

The Contra Costa County General Plan (Contra Costa County 1991) contains the following policies and implementation measures that appear to 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.

WATER RESOURCES

FEDERAL

CLEAN WATER ACT

The Clean Water Act (33 USC §1257 et seq.) requires states to set standards to protect water quality. Although water quality standards are to be met through the regulation of point source discharges to surface water, 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.

STATE

STATE WATER RESOURCES CONTROL BOARD

Under provisions of the Clean Water Act, the State Water Resources Control Board (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.

> Under the General Construction Activity Storm Water Permit, developers are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) if activities disturb greater than five acres. 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 developers of 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 the 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

The City of Pittsburg relies upon the Uniform Building Code, Chapter 70 for grading and erosion control.

CITY OF ANTIOCH

The Antioch Ordinance Code, Chapter 9, § 6-9.o1 et seq. controls non-stormwater discharges to the city's storm water system.

APPENDIX B:

PROOF OF SERVICE LIST

STATE OF CALIFORNIA

State Energy Resources Conservation and Development Commission

In the Matter of:	)	
	)	
Application for Certification	)	**Docket No. 98-AFC-1**
for the PITTSBURG DISTRICT	)	
ENERGY FACILITY (PDEF)	)	
_____	)	

I, _____ declare that on _____, I deposited copies of the attached_____in the United States mail in ___ **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-1
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:

APPLICANT

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INTERVENORS

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APPENDIX B: Proof of Service

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Third and "H" Streets
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*CAP-IT
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Newport Beach, CA 92660

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Antioch, CA 94509-1373

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U.S. Army Corps of Engineers
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San Francisco, CA 94105-2197

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ARB Stationary Source Division
Project Assessment
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Jeff Miller
California Independent System Operator
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Folsom, CA 95630

I declare that under penalty of perjury that the foregoing is true and correct.

_____

[signature]

APPENDIX C:

GLOSSARY OF TERMS and ACRONYMS

NOT AVAILABLE IN PDF VERSION

Bob Aldrich, Webmaster

APPENDIX D:

EXHIBIT LIST

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	
	)	
Application for Certification for the	)	Docket No. 98-AFC-1
Pittsburg District Energy Facility (PDEF)	)	
_____	)	

EXHIBIT LIST

EXHIBIT 1: Application for Certification, Volumes I and II, dated June 1998. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 2: Responses to Staff's data requests. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 3: Letter, dated September 10, 1998, re: PM_{10} Monitoring Plan. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 4: Revised response to Staff's request for clarification regarding Noise Monitoring Location 1, dated October 7, 1998. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 5: Preliminary Erosion Control/Stormwater Management Plan, dated October 15, 1998. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 6: Pacific Gas and Electric Company's Preliminary Facilities Study, dated December 4, 1998. Sponsored by Applicant; received into evidence on May 3, 1999.

EXHIBIT 7: Supplement to Application for Certification, dated December 1998. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 8: CONFIDENTIAL Cultural and Paleontological Resources Technical Report/Site Descriptions, dated December 11, 1998. Sponsored by Applicant; received into evidence on April 28, 1999.

EXHIBIT 9: Appendix P, Property Owner Information, dated December 7, 1998. Filed December 15, 1998. (List of 8th Street Residents.) Sponsored by Applicant; received into evidence on April 28, 1999.

EXHIBIT 10: The June 26, 1998 Alliance and Development Agreement between Enron Capital and Trade Resources Corp., and the Pittsburg Power Company, JPA, submitted December 21, 1998. Sponsored by Applicant; received into evidence on April 28, 1999.

EXHIBIT 11: Transmission Interconnect Related Drawings, dated December 29, 1998. Sponsored by Applicant; received into evidence on April 29, 1999 and May 3, 1999.

EXHIBIT 12: Supplement to the Application for Certification, dated January 5, 1999 re: Air Quality and Public Health. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 13: Transmission Pole Photo Simulations for the PDEF. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 14: Letter re: additional air quality related information and clarifications in response to Bay Area Air Quality Management District requests and the CEC, dated January 19, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 15: Clarification of air quality analysis, dated January 21, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 16: Summary of Water Treatment Chemical Usage and Storage, Revised Table 5.15-1, dated January 26, 1999. Sponsored by Applicant; received into evidence on May 3, 1999.

EXHIBIT 17: Air Offset Information, dated February 4, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 18: Plant Photo Simulations for the Pittsburg District Energy Facility, dated

February 12, 1999. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 19: Owens-Brockway Glass Emission Reduction Credits Summary, dated February 26, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 20: Correspondence to Mass. DEP from ANP, dated February 19, 1999, Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 21: Revisions to Health Risk Assessment Calculations, dated March 4, 1999. Sponsored by Applicant; received into evidence on May 3, 1999.

EXHIBIT 22: Drawing No. 9771-2046 re: transmission location at East 8th Street, dated March 5, 1999. Sponsored by Applicant; received into evidence on May 3, 1999.

EXHIBIT 23: Memorandum of Agreement of Quebecor Emission Reduction Credits, dated March 17, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 24: Letter from the California Independent System Operator (Cal-ISO) dated March 22, 1999. Sponsored by Applicant; received into evidence on May 3, 1999.

EXHIBIT 25: Bay Area Air Quality Management District, Preliminary Determination of Compliance, dated March 19, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 26: 115 kV Transmission Line Related Photo Simulations and Drawings, dated April 5, 1999. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 27: Correspondence from Delta Diablo Sanitation District re: Baseline Monitoring Report, dated April 20, 1999. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 28: Final Staff Assessment for the Pittsburg District Energy Facility, dated March 1999. Sponsored by Staff; received into evidence on May 26, 1999.

EXHIBIT 29: Supplemental Testimony to the Pittsburg District Energy Facility Staff

Assessment, dated April 12, 1999. Sponsored by Staff; received into evidence on May 26, 1999.

EXHIBIT 30: Applicant's Revised Witness List and Testimonies, dated April 12, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 31: Direct Testimony of the City of Antioch, dated April 12, 1999. Sponsored by City of Antioch; received into evidence on May 26, 1999.

EXHIBIT 32: Prepared Rebuttal Testimony, dated April 19, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 33: Prepared testimony from the Cal-ISO, dated April 9, 1999. Sponsored by Staff; received into evidence on May 3, 1999.

EXHIBIT 34: Prepared testimony of Gregg Feere on behalf of California Unions for Reliable Energy (CURE), dated April 12, 1999. Sponsored by CURE; received into evidence on April 29, 1999.

EXHIBIT 35: Resume of Maximo C. Ramos, III. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 36: Resume of Roger James. Sponsored by Applicant; received into evidence on April 29, 1999.

EXHIBIT 37: Water monitoring locations and various water charts. Sponsored by Staff; received into evidence on April 29, 1999.

EXHIBIT 38: Contra Costa Building and Construction Trades Council information regarding Non-union Apprenticeship Training Program, dated December 8, 1998. Sponsored by CURE; received into evidence on April 29, 1999.

EXHIBIT 39: Route of Linear Facilities Map. Sponsored by Applicant; received into evidence on May 3, 1999.

EXHIBIT 40: Corrective Measures Study (CMS). Prepared for the Department of Toxic Substance Control. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 41: Letter from the City of Pittsburg to the CEC Staff, in response to requests for additional data, dated March 26, 1999. Admitted into evidence by the

Committee on May 4, 1999.

EXHIBIT 42: Staff Supplemental Testimony on Soil and Water Resources prepared by Joseph O'Hagan and Nancy Monsen. Sponsored by Staff; received into evidence on May 26, 1999.

EXHIBIT 43: Letter from Bay Area Air Quality Management District (BAAQMD) to Applicant, dated March 4, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 44: Letter from BAAQMD to Applicant, dated March 17, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 45: Letter from the United States Environmental Protection Agency to BAAQMD, dated May 17, 1999. Sponsored by Applicant; received into evidence on May 26, 1999.

EXHIBIT 46: Supplemental testimony on Air Quality prepared by Guido Franco, dated May 14, 1999. Sponsored by Staff; received into evidence on May 26, 1999.

EXHIBIT 47: Staff's Air Quality Comments, prepared by Guido Franco, dated May 25, 1999. Sponsored by Staff; received into evidence on May 26, 1999.

EXHIBIT 48: Consultant's Report: A Modeling Assessment of Cumulative Air Quality Impacts of the Pittsburg District Energy Facility and Other Incremental Sources, by Joseph S. Scire, Certified Consulting Meteorologist. Sponsored by Staff; received into evidence on May 26, 1999.

EXHIBIT 49: BAAQMD's Final Determination of Compliance (FDOC) dated June 10, 1999. Sponsored by Applicant, received into evidence on June 15, 1999.

EXHIBIT 50: Revised Air Quality Testimony of Guido Franco, dated June 15, 1999. Submitted by Staff; received into evidence on June 15, 1999.

EXHIBIT 51: Clarifications to June 10, 1999 FDOC. Submitted by Staff; received into evidence on June 15, 1999.