

PRESIDING MEMBER'S PROPOSED DECISION

Application for Certification for the

SAN FRANCISCO ENERGY COMPANY'S COGENERATION PROJECT

City and County of San Francisco, California

Docket No. 94-AFC-1

DOCKET 94-AFC-1	
DATE:	OCT 24 1995
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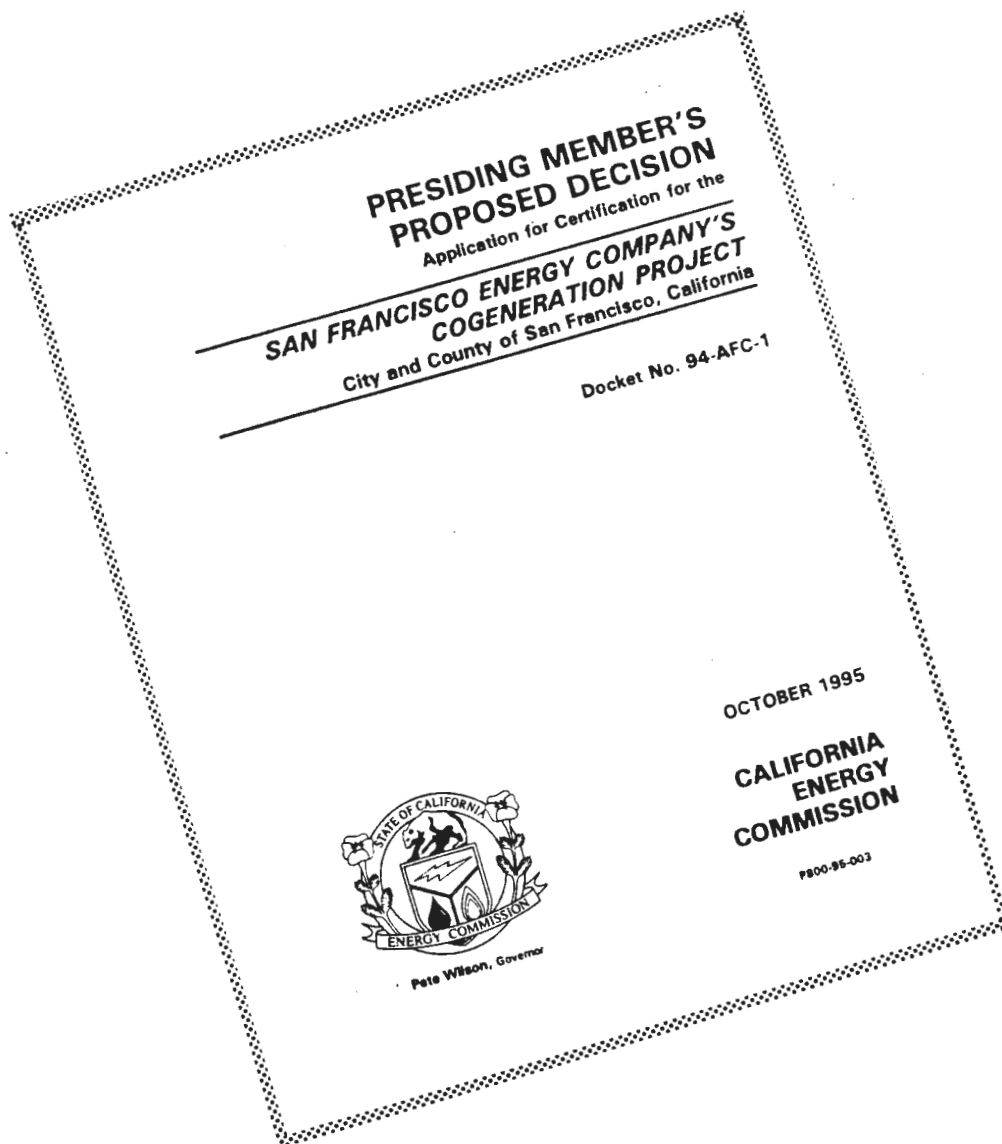


Pete Wilson, Governor

OCTOBER 1995

**CALIFORNIA
ENERGY
COMMISSION**

P800-95-003



CALIFORNIA ENERGY COMMISSION

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*Vice Chair
and Presiding Committee Member*

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PROOF OF SERVICE (REVISED 6/15/95)
FILED WITH ORIGINAL. MAILED FROM
SACRAMENTO ON 10/24/95 *sh*

CALIFORNIA ENERGY COMMISSION

6 NINTH STREET
CRAMENTO, CA 95814-5512



The Committee hereby submits the *Presiding Member's Proposed Decision* pursuant to 20 California Code of Regulations, section 1749.

The Committee recommends that the full Commission approve the San Francisco Energy Company's Cogeneration Project (SFEC). Its reasons for this recommendation are set forth in the following document.

The Committee will conduct a public Conference to receive comments and suggested revisions to the present document as follows:

THURSDAY, NOVEMBER 16, 1995
beginning at 4:30 p.m. to 8:00 p.m.
California Public Utilities Commission
505 Van Ness Avenue
Auditorium
San Francisco, California 94102
(handicapped accessible)

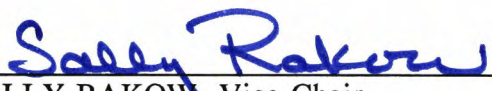
Applicants and Staff, as well as other parties wishing to participate at this Conference, shall submit written copies of their comments to all on the Proof of Service list *no later than November 15, 1995*.

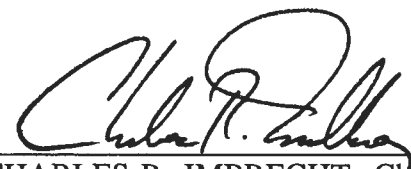
In addition to participating at this Conference, any person may submit written comments upon the *Presiding Member's Proposed Decision*. The deadline for submitting these written comments is *November 27, 1995*. Send all such comments to the Commission's Docket Unit, 1516 Ninth Street, MS-4, Sacramento, California 95814; reference Docket No. 94-AFC-1.

If you have further questions concerning this document in particular or the SFEC proceeding in general, please contact Ed Heidig, Public Advisor, at (916) 654-4489, or toll free, (800) 822-6228. Shawn Pittard, Regulatory Project Manager, can answer technical questions concerning the proposed project at (916) 654-5139. Address any legal or procedural inquiries to Garret Shean, Hearing Officer, at (916) 654-3893.

Dated: 10/24/95

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION


SALLY RAKOW, Vice Chair
and Presiding Committee Member


CHARLES R. IMBRECHT, Chairman
and Committee Member

STATE OF CALIFORNIA

State Energy Resources Conservation
and Development Commission

In the Matter of:	)	Docket No.: 94-AFC-1
	)	
Application for Certification	)	PROOF OF SERVICE
of the SAN FRANCISCO ENERGY	)	(rev. 6/15/95)
COMPANY'S COGENERATION Project (SFEC)	)	
_____	)	

PROOF OF SERVICE

I, SANDRA M. HARRIS declare that on OCTOBER 24, 1995, I deposited copies of the attached PRESIDING MEMBER'S PROPOSED DECISION in the United States mail in SACRAMENTO, CA with first class postage thereon fully prepaid and addressed to the following:

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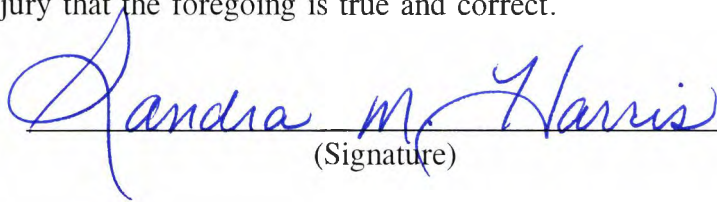
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STATE OF CALIFORNIA

State Energy Resources
Conservation and Development Commission

In the Matter of:	)	Docket No. 94-AFC-1
	)	
Application for Certification	)	
for the SAN FRANCISCO ENERGY	)	COMMISSION DECISION
COMPANY'S COGENERATION Project	)	

The Commission Decision in the above-captioned matter is based upon the evidentiary record of these proceedings. The following text contains a summary of the proceeding, the evidence presented, and the rationale for the findings reached and conditions imposed. The Decision includes this narrative text, conditions, compliance verifications and appendices.

FINDINGS

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

1. As the result of the California Public Utilities Commission's Final Standard Offer No. 4 auction, the proposed facility is in conformity with the 12-year forecast of statewide and service area electrical power demands and the integrated assessment of need adopted by the Commission in the 1992 *Electricity Report*, pursuant to Public Resources Code sections 25305(e), 25309(b), 25523.5, and 25524.
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.
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.

ORDER

Good cause appearing therefor, the Commission ORDERS as follows:

1. The Application for Certification for the San Francisco Energy Project as described in this Decision, under the terms of the power purchase agreement with Pacific Gas and Electric Company arising from the 1993 Biennial Resource Plan Update auction, is hereby approved.
2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification enumerated in the accompanying text and appendices, including operation within the statutory definition of "cogeneration" set forth in Public Resources Code section 25134. The Conditions of Certification and Compliance Verifications are integrated with this Decision and not severable therefrom. While Applicant may delegate the performance of a Condition of Certification or Compliance Verification, the duty to ensure adequate performance of such 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, the 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 thirty (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 the Decision in order to implement the compliance 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 the California Code of Regulations, title 20, section 1768.

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The Committee will recommend the adoption and incorporation of the following in the Decision:

OPEN LETTER TO THE CALIFORNIA PUBLIC UTILITIES COMMISSION AND PACIFIC GAS & ELECTRIC COMPANY

During the Energy Commission's (Commission) proceeding on the proposed San Francisco Energy Company's Cogeneration Project (SFEC), there has been significant public discussion about the impacts from, and future of, Pacific Gas & Electric Company's (PG&E) Hunters Point Units 2 and 3. This Commission recognizes that it has no direct jurisdiction over the Hunters Point powerplant. Rather, it is the California Public Utilities Commission (CPUC) which granted the Certificate of Public Convenience and Necessity to PG&E for the Hunters Point powerplant and continues to exercise regulatory authority over the cost of operations of the facility and remaining capital cost (less than \$2 million).

The Commission, by this letter, informs the CPUC and PG&E of the record we have developed and our recommendation stemming from it. We believe it would be appropriate as the SFEC becomes operational that Hunters Point Units 2 and 3 be retired from service. This recommendation does not preclude PG&E from considering other market-based options for the site or facility. We make this recommendation for the following reasons:

Implementation of the BIENNIAL RESOURCE PLAN UPDATE

The concepts of economic need and competition found in the 1990 and 1992 Electricity Reports (ER 90 and ER 92) and implemented by the CPUC's Biennial Resource Plan Update (BRPU) led to an auction whereby a utility's Identified Deferable Resources (IDR) were established, which in turn led to the utility's setting of a benchmark price against which private developers would bid to determine who should construct the next generation of least-cost new powerplants. That process placed PG&E's proposed repowering of Hunters Point Units 2 and

3 in competition with other generation options which chose to bid. SFEC produced the winning bid against PG&E as well as other private developers.

Therefore, the SFEC, as the winner, should replace Hunters Point Units 2 and 3. We believe that such replacement was the regulatory intent behind the concept of competitive economic need.

Therefore, to be consistent with the underlying concept of the BRPU, SFEC should be constructed and operated and PG&E's Hunters Point Unit 2 and 3 should be permanently retired.

Operation of Units 2 and 3 Burdens Ratepayers

The essence of the BRPU auction is that SFEC will produce electricity at a lower cost than repowered Hunters Point Units 2 and 3. Therefore, there would be a direct, avoidable added cost to ratepayers by using electricity generated from repowered Units 2 and 3 instead of from the SFEC. There would also be added, indirect cost to ratepayers from having to pay for the overhead and maintenance cost of keeping Units 2 and 3 operational or in cold standby. The direct and indirect ratepayer costs can be avoided by retiring Hunters Point Units 2 and 3.

Environmental Justice

The Bayview Hunters Point community correctly points out that there are already two powerplants in southeast San Francisco, namely PG&E's Hunters Point and Potrero facilities. If SFEC is merely added to the existing powerplants, the community complains that it is being disproportionately burdened with industry and pollution. This Commission has determined that with the mitigation required in our Conditions of Certification, the SFEC will comply with all laws and will not create a significant impact under the California Environmental Quality Act. We have done so with the knowledge that PG&E's expressed plan is to place Units 2 and 3 in long-term reserve in 2001 to avoid expensive air pollution control retrofits. We believe that placing Units 2 and 3 into non-operational status, as assured through a CPUC's regulatory process, it will add necessary certainty to this express intention.

In making this recommendation, we are mindful that whatever electricity industry future may come to pass, circumstances may arise wherein PG&E or a successor in interest may wish to utilize all or a portion of Units 2 and 3 or their site. While the recommendation cannot legally preclude that, we believe that the Bayview Hunters Point community should be afforded an open public process to address and debate the future use of Units 2 and 3 should that ever arise.

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INTRODUCTION AND SUMMARY

This Presiding Member's Proposed Decision sets forth the analysis and proposed findings of the Commission regarding this Application for Certification (AFC) of the San Francisco Energy Company (SFEC) for a 240 megawatt (MW) natural gas-fired combined cycle Cogeneration powerplant (project). The Commission has determined that the project complies with approximately 186 different federal, state, regional and local laws, ordinances, regulations and standards. The project is needed under the 1992 *Electricity Report*.¹ Under the direction of the California Environmental Quality Act and based on the evidence in the record, the Commission has determined that with the implementation of the Conditions of Certification no impact will rise above insignificance. Thus, under the law, the project is entitled to certification.

The proposed project will be located in the Bayview Hunters Point area of San Francisco, California on property owned and controlled by the Port of San Francisco. Electricity from the project will be sold to the Pacific Gas & Electric Company (PG&E) and the steam from the project will be sold to San Francisco Thermal for district heating and cooling or to the San Francisco wastewater treatment plant.

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

This document objectively evaluates the San Francisco Energy Company's (SFEC or Applicant) project and is based on the evidentiary record compiled through public hearings. As such, it reflects evidence submitted not only by SFEC and the Commission staff, but also that submitted by numerous other governmental agencies, neighborhood groups and private citizens

¹ There is an economic need for the project in 1997 and a physical need for the project after 2000. There is no compelling, physical need for the project to be operational by June 1997 in accordance with the bid specifications of the competitive auction.

as well. The Decision sets forth the analysis and findings of the Commission regarding SFEC's AFC.

The Commission has closely reviewed the extensive evidentiary record of the proceeding as well as the testimony filed by various Intervenors and all closing briefs and comments. The Commission has reviewed the SFEC project in 23 separate substantive topics ranging from need, community impacts, environmental impacts, public health and safety, alternatives, and engineering. Each technical section of the document : 1) summarizes the issues and/or setting; 2) summarizes the positions of the various parties; 3) summarizes the Commission's position; 4) contains a set of Findings and Conclusions, and if appropriate a set of Conditions of Certification.

The Commission's "open planning" siting process ensures that local residents of the Bayview Hunters Point community are not only be able to comment on SFEC's proposal, but also are able to extensively participate in the evaluation of that proposal. In addition, all of the meetings, workshops, and hearings at which information on the project is exchanged have been open to the public. This proceeding has included 41 public meetings or hearings, of which 35 have been in San Francisco, many in the neighborhood during the evening. These events have been open to the public and conducted after extensive direct-mail and published notice. In addition, there were numerous collateral meetings with citizen groups and local government officials to discuss various aspects of the case. Of the 41 public hearings and workshops, the Commission Committee conducted 13 days of formal evidentiary hearings.

The Commission's Public Adviser's Office undertook its own outreach program in the Bayview Hunters Point community and gave substantial assistance to those parties and members of the public who requested it. In addition to the direct mail notices, notices of the meetings were published in the local newspapers including multi-language newspaper noticing. Several of the community organizations have been represented by attorneys and law students from Bay Area law school clinic programs. The Commission is unaware of any environmental review process which affords greater opportunity for public participation.²

² Note that no public hearings are required under the Environmental Impact Report process conducted pursuant to the California Environmental Quality Act. (14 Cal. Code Reg., §§ 15087(g), 15202.)

The people of Bayview Hunters Point are very aware of their community's history. Since before World War II, Bayview Hunters Point has seen a shipyard, rendering plants, heavy and light industry, wrecking yards and even neighborhood gas stations. Their legacy is a host of sites with disposed war material; dump sites for lubricants, solvents, fuels, and debris; leaky underground storage tanks; and soil and groundwater contamination. Appropriately, the residents of Bayview Hunters Point have as their "number one" concern the potential for public health impacts from the project. Even those members of the community who support the Port site insist that their support is conditioned on a regulatory finding that the plant is safe.

Many of the individuals participating in this proceeding were motivated to do so out of concerns that the proposed project would create significant environmental problems for their community. Some of these people expressed their concerns informally to SFEC even before the case was filed. In addition, members of the public were present at every workshop where Staff's technical experts reviewed each aspect of the proposal in detail. All documents reviewed by the Staff were also made available to interested members of the public.

Public interest and participation in the proceeding has influenced project changes involving plant location, toxic materials handling, noise reduction, visual impacts, traffic, and socioeconomics enhancements to name a few. In addition, many areas of inquiry by the Staff were suggested by concerned and knowledgeable public participants.

These citizens have an absolute right to ask their government to respond to their concerns, whether that government is the San Francisco Board of Supervisors or the Energy Commission. But the government has a duty to act in a deliberative way, to gather the best information available and rely on an informed judgment.

Concerned citizens and community groups, participating in the review process as Intervenors, offered testimony at the evidentiary hearings just as did SFEC and the Staff. These occasions provided the opportunity for concerned citizens to factually establish the basis for their concerns. The Commission then evaluated this testimony along with that submitted by SFEC,

the Staff, and other agencies. In addition, many Intervenor and members of the public voiced their concerns during public comment periods which followed the hearings on various subject areas. This document explains the Commission's reasoning in light of the facts brought out through the evidence of record as a whole.

The Commission recognizes the Intervenor's earnest concerns about the project and aspirations for their neighborhoods. The Commission believes that some of the public health fears and concerns expressed *about this particular project* during the hearings are not supported by the weight of evidence. For example, concerning air quality and public health, the analyses of SFEC, the Bay Area Air Quality Management District (BAAQMD), and Staff each show that project complies with applicable state and federal air quality laws and will not cause any significant negative impacts either locally or in the Bay Area.

This powerplant is state-of-the-art when it comes to pollution control. There are no pathways to significant health impacts from this facility. In a society that consumes electricity, this is the best utility-scale combustion facility insofar as minimal emissions of pollutants. Widely accepted electricity industry computer models show that this project displaces pollution from old PG&E powerplants in San Francisco, other parts of the Bay Area, and Northern California. While it is true that there will be increased emissions from the project compared to those displaced from San Francisco plants, project emissions will be below a level of significance, even when added to the ambient air. As a result of purchasing emission offsets and displacing older more polluting PG&E powerplants, there will be a regional net air quality benefit. This in turn will reduce air-borne public health risks.

In addition to reviewing criteria pollutants, the Air District, SFEC and Staff independently conducted health risk assessments which confirm that there are no other emissions from the project which will cause a public health impact, including cancer. (FDOC, pp. 2, 11; FSA, Vol.I, p. 226.) There are no pathways to significant health impacts from this facility. The Commission could not and would not approve any project which threatened the health of the residents of Bayview Hunters Point. Moreover, the project will not contaminate the soil or

the groundwater. Again, the evidence establishes that the SFEC project does nothing to adversely impact or add to the existing conditions in Bayview Hunters Point .

Some residences fear toxic spills from the project. SFEC will implement a state-of-the-art ammonia handling safety design and an thorough risk assessment to assure the project's safety, as well as to eliminate all credible concerns of risk to the public. In addition, with proper mitigation and construction practices, the project will not contaminate the soil or the groundwater.³ If anything, the construction of the project on the Port site may remedy any existing site contamination. No facts were introduced to effectively challenge these conclusions.

The Commission believes that its process has brought forth evidence which is the most up-to-date and reliable health information upon which to make its Decision. On the basis of that information, the Commission can say that the project will be built and operated as safely as is technologically and humanly possible. Thus, we can say the air quality and public health impacts will be insignificant.

Others are concerned over the visual appearance of the project. While it will be part of the existing, industrially developed Port, all feasible measures will be taken to reduce the visual effects of the project.

Finally, the Commission cannot ignore the need to spur economic development in the "brownfields" of the urban core in environmentally acceptable ways. This project represents a \$186 million investment in the California economy. There are more tangible benefits to the San Francisco and Bayview Hunters Point area, in particular. SFEC has committed in a Memorandum of Understanding (MOU) with a community-based organization to use its "best efforts" to employ half of its construction workforce from the local community. Virtually all of the local construction unions have signed an agreement to implement SFEC's pledge. Skeptics of this pledge argue that it is not ironclad and calls only for "best efforts". The

³ The California Department of Toxic Substances Control (DTSC) is requiring SFEC to complete additional groundwater sampling at the Port site to determine whether an ecological risk assessment is necessary. The sampling and possible ecological risk assessment will determine the direction and timing of the actual remediation activity. DTSC's remediation plan will be available for public review by DTSC before the Commission renders its Decision on this project.

Commission believes that "best efforts" needs to be viewed in the context of what is gained rather than what is missing. SFEC's pledge is meaningful. Along with the community, the Commission will be monitoring SFEC's success in meeting its pledge.

On the financial front, the SFEC project will pay possessory taxes, in lieu of property taxes, of approximately \$2 million per year. Approximately half of this will go to the City's General Fund, with the remainder going to different funds. Since the project is located on Port property, SFEC will make lease payments to the Port. The lease is for 30 years at a total of \$100 million. The lease includes an escalator clause, so the annual average lease payment is approximately \$3 million.

In addition to taxes and leases, SFEC, in accordance with section 37 of the Draft Port Lease, has offered to fund a community benefits package with a total contribution of \$13 million, to be available at about \$250,000 per year. SFEC proposes that disbursement from the fund be guided by a community-based organization on worthwhile community projects. With this fund, the people of Bayview Hunters Point will have money available to do the things that the community wants done. SFEC's commitment to create the community benefit fund is firm and serves as a keystone in the Commission's determination that the benefits of the project to the community outweigh any burdens. The Commission thus believes that locating the facility in Bayview Hunters Point, in a manner consistent with all environmental laws and land use plans, meets the concerns of the Intervenors who view certain types of industrial development as a form of environmental injustice.

PROJECT DESCRIPTION

San Francisco Energy Company (SFEC) proposes to construct and operate a combined-cycle cogeneration electrical generation facility capable of generating up to 240 megawatts (MW) net capacity in the Bayview Hunters Point area of San Francisco, California. The facility will generate electricity and waste steam using natural gas as the sole fuel source and is designed to operate 24 hours per day. Natural gas will be provided via either the existing Pacific Gas and Electric Company (PG&E) or the proposed Mojave Pipeline Company (Mojave) gas pipelines.

The electricity produced from the facility will be sold under a contract to PG&E, via a connection to the existing 115 kilovolt (kV) Hunters Point substation. Steam generated by the project may be used in a wastewater reclamation facility (WRF) and/or sold to San Francisco Thermal L.P. (SF Thermal) via a new four-mile steam pipeline for use in the existing steam heating and cooling system.

In addition to the cogeneration facility, if an agreement with SF Thermal is reached, SFEC proposes to construct a wastewater treatment facility at the project site. If no agreement is reached, SFEC proposes to construct a WRF to treat secondary effluent from the City of San Francisco's Southeast Water Pollution Control Plant (WPCP). Both proposals have been reviewed by the Commission.

The proposed project is the result of a competitive bidding process designed to displace PG&E's aging and inefficient powerplants with new, more efficient and economical resource additions. This competition, held under the guidance and direction of the California Public Utilities Commission (CPUC), was the culmination of a four-year resource acquisition process known as the Biennial Resource Plan Update (BRPU). SFEC was declared the winner of the competitive bid on January 10, 1994.

Facility Location

SFEC proposed two possible sites for the project in its original Application for Certification: the "Innes Avenue" site; and the "Port" site. On April 28, 1995, the Applicant requested that review of the Innes Avenue site be suspended, without prejudice.³ The Port site is located near PG&E's Hunters Point powerplant in the Bayview Hunters Point area of San Francisco. The local setting for the project is depicted in PROJECT DESCRIPTION FIGURE 1. The regional setting of the project is shown in PROJECT DESCRIPTION FIGURE 2 and PROJECT DESCRIPTION FIGURE 3 shows the proposed equipment layout for the site.

The proposed site is a five acre developed parcel of land located on Seawall Lot 344, near the Port of San Francisco's Piers 90 and 92 on the Islais Creek Channel, and Piers 94 and 96 on the San Francisco Bay. In relation to the other properties located near Islais Creek, Seawall Lot 344 is the parcel set farthest back from the shoreline to the north and east. An additional four to five acres will be temporarily used for construction laydown, staging, and parking.

Facilities near the site include Darling International, Inc., an animal rendering facility; a United States Post Office facility with approximately 2,900 employees; and several grain elevator structures. South of the site is the Port of San Francisco's Intermodal Container Transfer Facility.

The site is uneven terrain comprised of fill material underlain by San Francisco Bay Mud. Site grading will be required during construction in order to create a foundation for the facility. The site currently contains soils which may have been contaminated. Measures will be required to assure that no dust, subsurface contaminated soils, or groundwater leave the site during construction activities and that additional testing be done to determine the exact nature of the contamination. If the soils are determined to be contaminated, remedial action will be

³ On May 5, 1995, the Committee issued an ORDER TO SHOW CAUSE directing the Applicant to demonstrate why the certification review of the Innes Avenue site should not be suspended indefinitely without prejudice. Subsequently, the Committee by ORDER of May 16, 1995, suspended the regulatory review of the Innes Avenue site.

taken. SFEC has indicated that clean fill material will be brought onto the site during construction if necessary.⁴

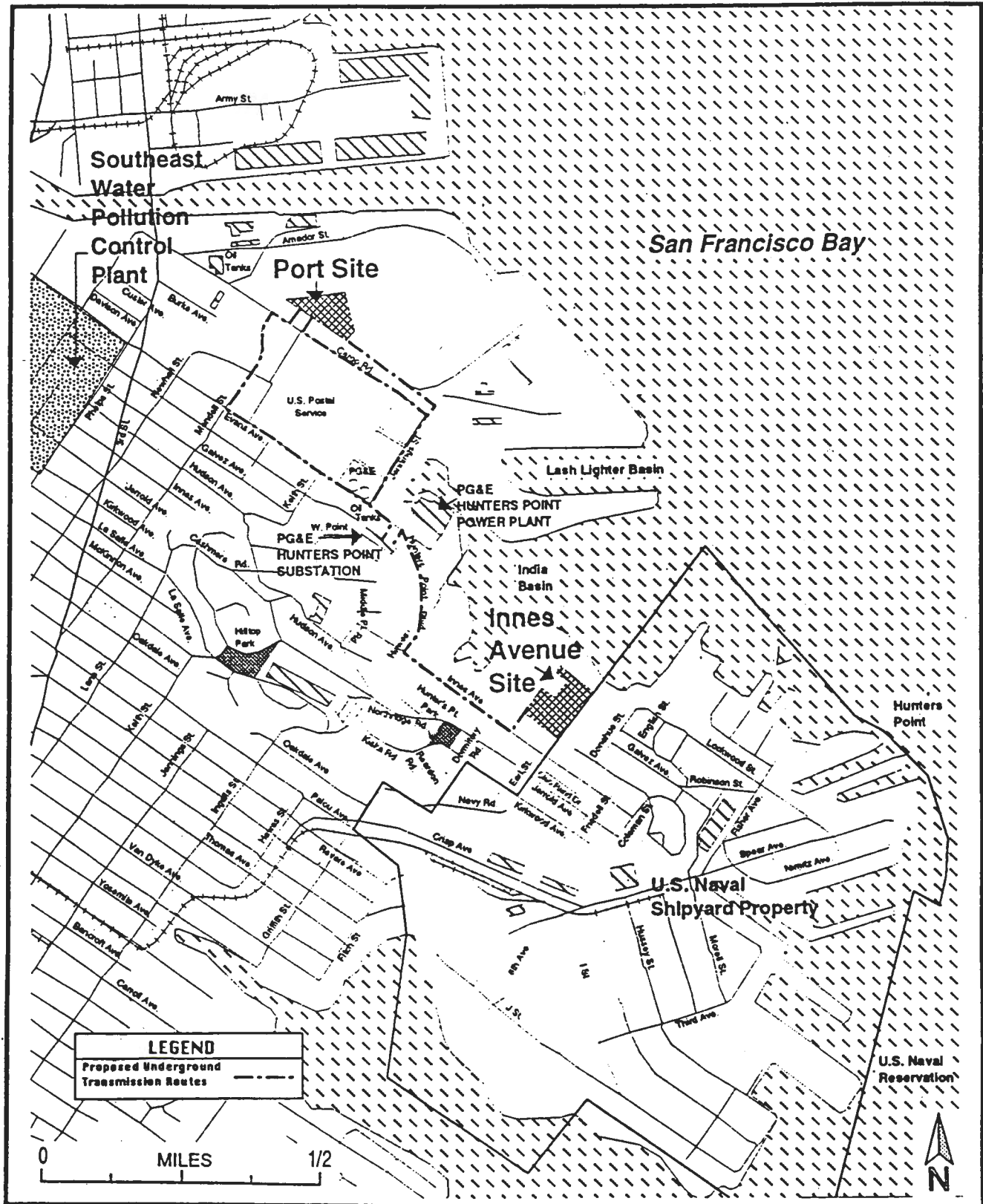
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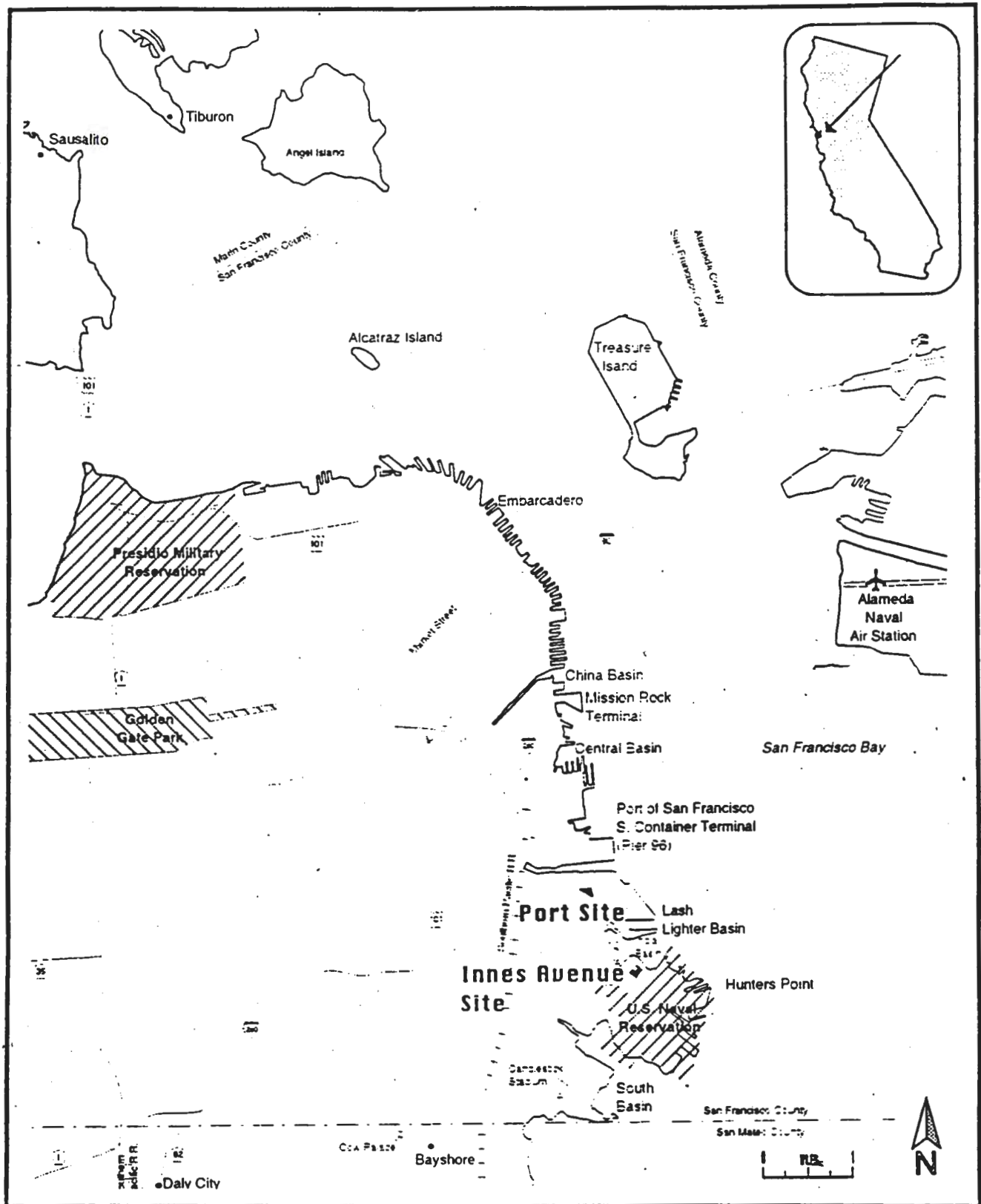
⁴ Additional information on soil contamination is discussed in the SOIL & WATER RESOURCES/SITE REMEDIATION section of this Decision.

PROJECT DESCRIPTION FIGURE 1
Local Setting

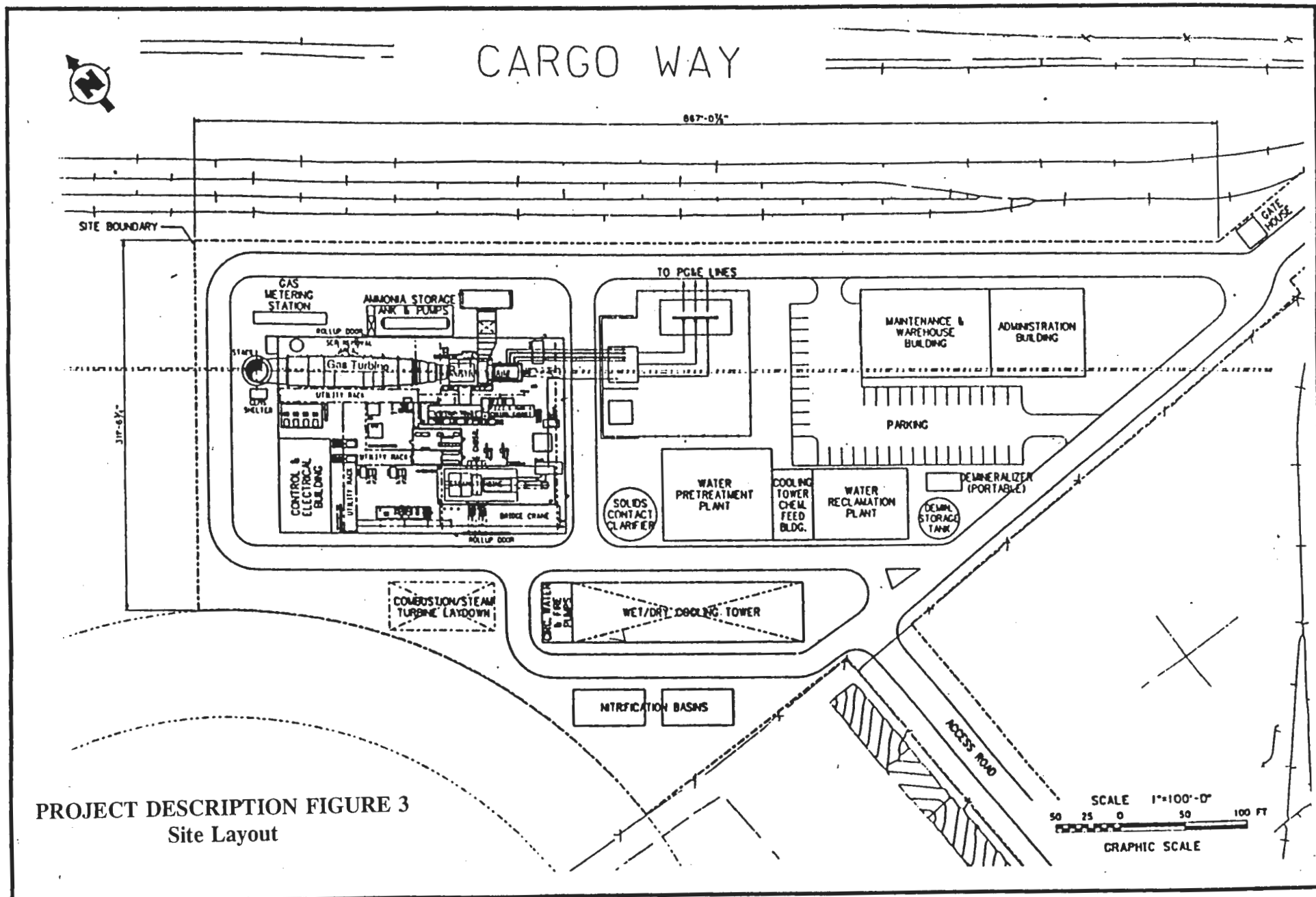


(Source: FSA, Vol. I, p. 19.)

PROJECT DESCRIPTION FIGURE 2
Regional Setting



(Source: FSA, Vol. I, p. 18.)



PROJECT DESCRIPTION FIGURE 3
Site Layout

Powerplant Features

The proposed SFEC facility is a gas turbine driven steam powerplant and water reclamation facility that will sequentially produce a net electrical output of up to 240 MW and up to 125,000 pounds per hour of steam. Approximately 50,000 pounds per hour of low pressure steam will be delivered to the WRF on a continuous basis for the production of up to 500,000 gallons per day of treated water. Approximately 85 percent of this purified water will be sent to the Southeast WPCP for consumptive uses which are currently supplied by potable water from the San Francisco Department of Public Works. The remaining water will be used in the facility as feedwater to the heat recovery steam generator (HRSG) for steam production.

Alternatively, steam may be sold to SF Thermal for use in its district heating and cooling system. Per a Letter of Intent, SFEC will deliver up to 125,000 pounds per hour of steam to SF Thermal. On an annual basis, this is an average of approximately 85,000 pounds per hour.

An average of 2,055 gallons per minute of cooling water for the powerplant is proposed to be secondary effluent supplied by wastewater pipeline from the WPCP and treated on-site. As a result, the powerplant will not require cooling water from San Francisco Bay (Bay). The project will not discharge into the Bay since all wastewater would be returned to the WPCP through either the sewer system or a direct pipeline. Per the "Draft Effluent Purification Services Agreement" with the City and County of San Francisco, up to 3,500 gallons per minute of secondary effluent will be delivered for cooling water and makeup water to the water purification process.⁵

The cogeneration facility's basic power generation configuration consists of a single power block containing a 140 MW natural gas-fired General Electric Frame 7FA combustion turbine generator (CTG) with dry low-NO_x combustors. Natural gas will be the only fuel burned

⁵ The City of San Francisco and San Francisco Energy Company have not yet reached a final agreement on a water supply for the project. Any contract that is eventually negotiated between the Department of Public Works and San Francisco Energy Company must be approved by the San Francisco Board of Supervisors.

in the turbine generator. The hot gas flow spins a turbine connected to a synchronous generator that produces electricity. The combustion exhaust from the CTG is directed through the HRSG where more energy is extracted from the exhaust gases in the form of steam. The HRSG has supplemental firing or duct burning which is designed to augment the production of steam during varying ambient conditions. The steam is directed to a 100 MW steam turbine generator (STG) where more electricity is produced. This combined-cycle configuration (CTG and STG) produces electricity at an efficiency of over 50 percent, which means that over half of the useful energy consumed by the facility is converted into electricity.

The HRSG contains a selective catalytic reduction (SCR) system with aqueous ammonia injection to reduce nitrogen oxide (NO_x) emissions to 3.5 parts per million (ppm). The HRSG may contain an oxidation catalyst to reduce carbon monoxide (CO) emissions to 3 ppm should the CTG alone be unable to meet that emission level.

The highest structure at the facility would be an emission stack 110 feet in height. The tallest structure related to the facility would be the HRSG building which measures 90 feet in height. A wet/dry cooling tower will be used to provide cooling for the steam turbine. The cooling tower, in combination with a circulating water and fire pump facility, will measure 60 feet in height.

Operation of the facility will require the use, delivery, storage, and disposal of a number of hazardous materials including aqueous ammonia.⁶

Natural Gas Pipeline Routes

The PG&E natural gas pipeline nearest to the site is located at the corner of Phelps Street and Evans Avenue. To connect the existing pipeline to the project site, SFEC proposed two

⁶ For a complete description of how these materials will be used, delivered, stored, and disposed, refer to the TRAFFIC and TRANSPORTATION, HAZARDOUS MATERIALS MANAGEMENT, AIR QUALITY, and PUBLIC HEALTH sections of this Decision.

alternative routes from this intersection. The first alternative route would proceed southeast along Evans Avenue to Mendell Street and then turn northeast to follow Mendell Street to Cargo Way. From this point the route would proceed across Cargo Way onto the site.

The second route would proceed northwest along Evans Avenue to Quint Street and then turn northeast on Quint. At the intersection of Quint Street and Cargo Way the route would turn southeast to follow Cargo Way until it is adjacent to the site. Both of these routes were identified to minimize disturbance to traffic on Third Street.

Waste Water Pipeline Routes

SFEC proposed two alternative water pipeline routes from the Southeast WPCP to the Port site. The first proceeds southeast along Evans Avenue to Mendell Street and then turns northeast, following Mendell Street to Cargo Way. From this point it continues on Cargo Way onto the project site.

The second alternative proceeds northwest along Evans Avenue to Quint Street and turns northeast. At the intersection of Quint Street and Cargo Way the route turns southeast and follows Cargo Way until it is across from the project site.

As with the gas pipeline routes, SFEC indicates that both of these routes were identified to minimize disturbance to traffic on Third Street.

Transmission Line Routes

Undergrounding the electric transmission line will require that an above ground to underground transition structure 22 feet in height be constructed at the site. A similar structure will be constructed at the PG&E Hunters Point substation in order to provide a transition for the underground line to the above ground connection to PG&E's electric system. The nearest residence to the transition structure location at the site is at Hudson and Innes Avenues,

approximately 2,100 feet away. At the PG&E Hunters Point substation the nearest residence is approximately 2,000 feet from the transition structure site.⁷

Steam Pipeline

If SFEC completes its agreement with SF Thermal, steam will be delivered from the project site via a new 12 to 16-inch diameter insulated pipeline at a pressure of 205 per square inch (psig) and 404° F. The pipeline will involve approximately four miles of trenches with an average depth of ten feet and an average width of three feet. Steam flow through the pipeline will average 85,000 pounds per hour (lb/hr), with a peak anticipated to be 125,000 lb/hr. The project will annually provide SF Thermal 700 million pounds of steam.

SF Thermal provides steam to about 200 customers around San Francisco through 11.2 miles of steam mains. This steam is used for space heating, domestic hot water, absorption air-conditioning, and in commercial processes. The steam provided by SFEC will represent a major portion of SF Thermal's annual steam requirements. SF Thermal currently produces steam using two natural gas-fired plants, one of which operates 365 days per year. SF Thermal is regulated by the California Public Utilities Commission (CPUC).

Construction

Construction of the powerplant would occur in four major steps: site preparation/remediation; construction of the foundations and structures; mechanical and electrical equipment installation; and startup and testing.

The construction phase ends when the nonoperational testing of components and systems is completed. After the facility is determined to be mechanically complete, the startup and

⁷ For further information on this transmission line, please see TRANSMISSION SYSTEM ENGINEERING and TRANSMISSION LINE SAFETY AND NUISANCE sections of this Decision.

operational testing of the facility begin. Startup testing includes emission testing and monitoring to assure compliance with all applicable permits as well as performance testing to verify conformance with equipment specifications. Finally, during the startup and testing phase, all personnel receive site-specific training on the operation of the facility.

Construction and startup of the entire project (including the cogeneration facility, wastewater reclamation facility, and all utility connections) would take approximately eighteen months following certification.

DEMAND CONFORMANCE

The Warren-Alquist Act requires the Commission to make a finding regarding a proposed project's conformity with the Electricity Report's (ER) "integrated assessment of need for new resource additions." (Pub. Resources Code § 25523(f).) The applicable ER is that adopted most recently prior to acceptance of an Application for Certification, in this case ER 92 (Cal. Code Regs, tit. 20, § 1720.5.) An affirmative demand conformance finding is necessary for certification. (Pub. Resources Code, § 25524.)

1. Background.

In siting proceedings prior to the SFEC application, the Energy Commission reviewed demand conformance on a case-by-case, first come, first served basis. Historically, beginning with the 1977 Biennial Report, applications were based upon a "physical" need to meet increased demand. The "economic need" test began in 1990 with ER 90. The SFEC application thus is the first proposal resulting from a process begun in ER 90 and continued in ER 92 which seeks to coordinate the planning and oversight functions of the Energy Commission and the California Public Utilities Commission (CPUC).

In this era of a State-wide excess of generating capacity, the Energy Commission identified utility facilities which could be replaced because they were marginally uneconomic, less efficient, and more polluting than new powerplants. Under this "economic" need approach, only new generation which would reduce utility system average costs, benefitting ratepayers, would be added. In turn, the CPUC required the utility owning such a facility, labeled the "Identified Deferable Resource", to calculate its own costs of installing a new facility or repowering the facility. Using the utility estimates as a benchmark, the CPUC established an auction process existing, called the Biennial Resource Plan Update (BRPU), to permit independent, non-utility energy developers to bid competitively against the utility estimate. Ultimately, a bid winner would be declared as the least-cost option for providing the needed

generation. If the winner were an independent developer, it would be eligible for CPUC pre-approved Final Standard Offer No. 4 (FSO4) contract with the receiving utility.

To streamline the regulatory process, the Legislature adopted AB 1884 (Chapter 1108 of 1993; Pub. Resources Code, § 25523.5) to exempt winners in the competitive bidding process from making the traditional showing of demand conformance in the Energy Commission's siting review. Thus, a BRPU bid winner could be deemed "needed" for purposes of the Energy Commission's required demand conformance finding.

2. Demand Conformance Issues

This is the Commission's first review of a proposed project arising from the CPUC's BRPU process. Accordingly, the Committee conducting the proceeding maintained close oversight of the development of demand conformance issues, among others.

Among the events potentially affecting the need review was a February 23, 1995 Order⁸ by the Federal Energy Regulatory Commission (FERC) on petitions by Southern California Edison (SCE) and San Diego Gas and Electric Company (SDG&E) invalidating the BRPU process for not allowing all-source bidding in violation of the federal Public Utilities Regulatory Policy Act (PURPA). However, FERC did not invalidate uncontested, executed contracts in this Order.

SFEC claims it has a valid, BRPU-derived FSO4 contract, even though Pacific Gas & Electric Company (PG&E) has not signed the contract.

Certain "need" issues also arose at a public hearing on April 11, 1995, which caused the Committee to enumerate several issues for briefing in advance of the evidentiary hearings which established the record for this Decision. Subsequently, on April 28, 1995, the Committee

⁸ Order on Petitions for Enforcement Action Pursuant to section 210(h) of PURPA (70 FERC 61,215 (1995).)

released its COMMITTEE ORDER RE ADDITIONAL ANALYSIS directing the parties to brief the following issues:

- Is an executed power purchase agreement needed for an affirmative finding of need under the 1992 Electricity Report (ER 92)?
- Does a power purchase agreement exist in a legal sense?

In addition, the Committee directed the parties to address the effects, if any, of a change by PG&E to its San Francisco Operating Criterion (SFOC) regarding reliability requirements for San Francisco made prior the ER 92 need assessment and arguably unknown to the Commission in adopting ER 92:

- Is the use of the "old" SFOC determinative of the ER 92 finding related to the identification of the Hunters Point IDR (Identified Deferrable Resource)?
- Would the use of the "new" SFOC instead of the "old" SFOC substantially change or reverse an ER 92 need analysis for this project?

SFEC, the Commission staff, and Intervenors Morgan Heights Homeowners Association/Innes Avenue Coalition filed briefs on these issues.

Additionally, ER 92 provides that an applicant shall submit a transmission interconnection agreement as a requirement for certification. (ER 92 at p. 133.) To date, SFEC has provided only a preliminary agreement.

3. Summary of Evidence.

a. SFEC

SFEC offered a tiered, alternative approach for its demand conformance showing. First, SFEC argued that the project was deemed "needed" under Public Resources Code section

25523.5 (AB 1884) as the BRPU winner. Next, SFEC contended that the project conforms to ER 92's integrated assessment of need by virtue of winning the BRPU bid. Finally, SFEC contended that the project was cost-effective within the meaning of ER 92.

BRPU Winner. SFEC placed into evidence its AFC, section 2 - Need for Proposed Facility - which stated that PG&E announced on January 10, 1994, that AES Pacific, Inc. (Applicant), was the final winning bidder in the Hunters Point auction. (7/6/95 RT 134:4; AFC, p. 2-12.) SFEC argued it is therefore a "result" of the CPUC BRPU auction process and thus deemed needed as a matter of law under the terms of Public Resources Code section 25523.5(a). SFEC also introduced into evidence the FSO4 contract, with proof of site control and irrevocable letter of credit (Ex. 1) which it signed on April 24, 1994, after PG&E announced that the project had won the BRPU auction. (7/6/95 RT 34:14.)

Cost-Effectiveness. To support its alternative theory of demand conformance, SFEC offered two witnesses who had performed modeling to establish that the proposed project was cost-effective compared to the established Hunters Point repowering IDR.

One modeling exercise employed the SERASYM model using current data and analyzed the PG&E system with and without the SFEC project, using the "old" and the "new" San Francisco Operating Criterion (SFOC).⁹ SFEC's witness panel testified that if the "new" SFOC had been used in place of the "old" SFOC in the ER 92 need assessment, it would not have resulted in a different socially least-cost option. Acknowledging that there was a difference between the "old" and "new" SFOC, the witnesses stated that the difference was minor, and not

⁹ The "old" SFOC required 50 percent San Francisco-based generation to meet loads in the event of an emergency contingency isolating the City from the PG&E transmission grid. The "new" SFOC lowers the requirement for San Francisco-based generation during non-peak loads based upon economic dispatch of San Francisco units.

Responding to Staff's objection that this modeling testimony "re-examined" ER 92 rather than relied upon ER 92, the Committee admitted the testimony for the limited purpose of addressing the materiality of any change in using the "old" versus "new" SFOC in identifying the need in ER 92 for the Hunters Point IDR.

enough to change the need for a Hunters Point project identified in ER 92. (7/6/95 RT 117:3 - 25.)

The other modeling exercise employed ELFIN to analyze the relative cost-effectiveness of the proposed project in comparison to the Hunters Point repowering. The Committee allowed SFEC to make an offer of proof, stating that the testimony using the same modeling method and ER 92 data would demonstrate that the proposed project is cost-effective using ER 92 criterion and would provide substantial benefits to PG&E ratepayers in comparison to alternate resources.¹⁰

PG&E Criterion. SFEC also offered the testimony of a transmission and system analyst who prepared answers to Intervenor's Data Requests ALTERNATIVES 1-3.¹¹ Responding to Staff's objection that this testimony dealt with project alternatives, the Committee admitted the testimony for the limited purpose of addressing the materiality of any change in using the "old" versus "new" SFOC in identifying the need in ER 92 for the Hunters Point IDR. (7/6/95 RT 91:21-25.)

The Intervenor's (Data Request ALT-1) inquired whether PG&E's 1991 transmission upgrades leading to the "new" SFOC were sufficient to meet the need identified in ER 92. SFEC responded (6/23/95) that PG&E's transmission upgrades were known in the ER 92 process and did not affect the finding that the Hunters Point repowering was needed. The answer also stated that PG&E's San Francisco *Planning* Criterion¹² show that the transmission upgrades do

¹⁰ The Committee allowed this offer, but sustained Staff's objection to admission; it is noted here for the record on appeal, if necessary.

¹¹ The language in the Intervenor's Data Requests ALT-1 & 3 directed to SFEC is virtually identical to that in the Intervenor's Need Data Requests 1 & 3 directed to PG&E.

¹² Generally, the difference between the San Francisco Operating Criterion (SFOC) and the San Francisco Planning Criteria (SFPC) is that the SFOC addresses the "operation" of PG&E's generating system in San Francisco in case the City becomes isolated from the remainder of PG&E's transmission grid due to earthquake, aircraft accident or transmission grid disruption. The SFPC considers a larger transmission system context than when San Francisco might be isolated from PG&E's grid. This context includes "planning" sufficient transmission capacity to serve the San Francisco loads, including other types of transmission outages on the peninsula.

not obviate the need for San Francisco-located generation in order to ensure reliability under certain planning contingencies. Additionally, this response stated that the 260 MW transmission upgrade cannot be equated with added generation for two principal reasons. First, generation must be increased somewhere on the PG&E system to utilize the 260 MW of increased transmission capacity. So generation is not being displaced by transmission upgrades. Second, one of the reasons for having local generation and the SFOC is to maintain voltage levels in San Francisco during an emergency. Increased transmission capability using imported generation is not an effective way to maintain these voltage levels in San Francisco. (6/23/95 Data Responses to Intervenor's ALT-1.)

The Intervenor's Data Request ALT-2 asked why, in light of 1991 transmission upgrades adding 260 MW of transmission resources, does PG&E¹³ continue to show generation still near 50 percent as in the "old" SFOC? SFEC's witnesses explained at the "new" SFOC allows for more *economic* scheduling of generation resources during off-peak and partial-peak periods. Thus, during these periods, the percentage of local generation may be less than 50 percent of San Francisco loads. The most critical time for adequate generation is on-peak. Thus, PG&E desires local generation reaching 50 percent of load, similar to the "old" SFOC. Without local generation, imported generation will heavily load the transmission lines, which sets up chain-reaction conditions for possible voltage collapse. In many cases, only a dynamic reactive power supply, such as generation or synchronous condensers can reverse this *potential* chain reaction. (6/23/95 Data Response to Intervenor's ALT-2.)

Intervenor's Data Request ALT-3 also queried concerning the minimum facility needs (in MW) for backup purposes taking into account the 1991 transmission upgrades, the revised SFOC, and the retirement of Hunters Point Units 2 and 3. The witnesses explained that the ER 92 need determination was economic in character, concluding that the repowering of Hunters Point Units 2 and 3 was cost-effective and therefore needed. The Hunters Point repowering was identified as the deferrable resource for the PG&E system and thus subject to the BRPU

¹³ Graph in answer to Staff Data Requests ALT-18 & 19.

auction process. The current *economic* need for the repowering is independent of the increased peninsula transmission capability and any resultant change to the SFOC. Although not on the same time schedule as the current *economic* need, there will be a physical need in the future after Hunters Point Unit Nos. 2 and 3 are put in long-term reserve. The SFOC will not be met by Hunters Point Unit No. 4 and Potrero Unit No. 3 beginning in 2001 after the retirement of Hunters Point Unit Nos. 2 and 3. Based upon PG&E's San Francisco Planning Criteria, there would be a *physical* need during a single contingency event (loss of the San Mateo to Martin 230 kV cable) equal to the larger of Hunters Point Unit No. 4 or Potrero Unit No. 3. (6/23/95 Data Responses to Intervenors' ALT-3.)

SFEC's witnesses testified that if generation which is retired in San Francisco is not replaced, or if the proportion of available on-line generation decreases as demand increases on the peninsula, the reliability of service in San Francisco will deteriorate to conditions which do not achieve PG&E's operating and planning criteria. (7/6/95 RT 172: 11-15.)

Transmission. Addressing the requirement of ER 92 for a transmission interconnection agreement, another SFEC witness testified that as part of its FSO4 contract the proposed project would interconnect at the Hunters Point substation. SFEC has a completed preliminary transmission interconnection study. As of July 6, 1995, SFEC had requested and paid for a detailed final interconnection study, which deals with cost matters but not the feasibility of the receiving substation to accept the interconnection. (7/6/95 RT 177:4 - 178:14.) As to the FSO4 contract requirement of site control, this witness also testified that SFEC and the staff of the Port of San Francisco had negotiated a Port Lease which had been initialled by both SFEC and the Port director. Final approval of the Lease awaits action by the Port Commission and Board of Supervisors following the Energy Commission's licensing review. (7/6/95 RT 35:19-36:2.)

b. Commission Staff

Staff testified that, given the dispute between PG&E and SFEC over the existence of the FSO4 contract, it could not make an unconditional recommendation as to demand conformance.

(FSA, Vol. I, p. 33.) In supplemental testimony, Staff recommended inclusion of a condition subsequent in the Decision that before any construction begins there be a determination that the FSO4 contract be found enforceable. (7/6/95 RT 231:11-24.)

c. Intervenors

The Morgan Heights Homeowners Association and the Innes Avenue Coalition (hereinafter "Intervenors") joined for the purposes of presenting testimony on demand conformance.

The Intervenors obtained subpoenas for the attendance of five PG&E witnesses who were responsible for the preparation of 4/23/95 Data Responses ALT-PG&E 18 & 19; 5/24/95 PG&E Data Responses to questions regarding ALT-PG&E 18 & 19; and, 6/30/95 PG&E Data Responses to Intervenors Data Requests NEED-1 & 3.

In its April 23, 1995 Data Response, PG&E stated that for ELFIN modeling *without* the SFEC project:

"...the SFOC and PG&E's plans not to retrofit [Hunters Point Unit Nos. 2 and 3 with air pollution control equipment] results in a physical need for a third plant in 2001." (p. 4.)

In its May 24, 1995 Responses, PG&E added that for ELFIN modeling *without* the SFEC project:

"PG&E would evaluate alternatives to the San Francisco Energy Plant which would enable PG&E to provide reliable electric service after January 1, 2001. These alternatives could include aggressive DSM [demand side management] programs, transmission upgrades or other new local generation." (p. 4.)

Responding to the Intervenors' Data Request NEED-1 asking whether PG&E's 1991 transmission upgrades leading to the "new" SFOC were sufficient to meet the need identified in ER 92, the documentary testimony stated that comparing only megawatts of added transmission

resources versus megawatts of new generation resources does not consider reliability differences between the two types of resources. For example, adding more transmission upgrades on the peninsula to lower generation requirements may require exposing the downtown San Francisco networks to under-frequency load shedding.¹⁴ (Data Response No. 1, p. 2.)

In Data Request No. 2 the Intervenor asked why, if PG&E's 1991 transmission upgrades added 260 MW of transmission resources, does PG&E's graph (in answer to Staff Data Requests ALT-18 & 19) continue to show generation still near 50 percent as in the "old" SFOC? PG&E responded (Data Response No. NEED-2) that with the "new" SFOC the amount of on-line generation does not change significantly from 50 percent during peak periods. Direct comparisons with the "old" criterion are therefore difficult because that criterion did not insure continuous service to all customers in the event of an outage of the San Mateo-Martin 230 kV cable.

The Intervenor also inquired (Data Request No. 3) concerning the minimum facility needs (in MW) for backup purposes taking into account the 1991 transmission upgrades, the revised SFOC, and the retirement of Hunters Point Unit Nos. 2 and 3. PG&E responded (Data Response No. 3) that the 221 MW of need identified by the CPUC is not based solely on the SFOC, but rather is a combination of both system economic need and local physical need. The Response further states PG&E would consider the minimum facility now needed for backup to be equivalent to PG&E's largest San Francisco generating unit, i.e., Potrero Unit No. 3 at 207 MW.

In addition, PG&E testified orally that in its view it does not have a fully executed contract with SFEC for the proposed project. (7/6/95 RT 191:24 - 192:2.) One of the reasons PG&E believes there is no enforceable contract is that all of the required prerequisites have not been complied with, namely identification of two sites instead of the one called for in the FSO4

¹⁴ "Under-frequency load shedding" is a process which would automatically isolate San Francisco from the remainder of the transmission grid as frequency and associated voltages dip below required minimums.

contract and the absence of site control over the Port site. (7/6/95 RT 196:2-16.) There also is not an executed transmission interconnection or special facilities agreement between PG&E and SFEC. (RT 196:21-24.) PG&E acknowledged that the preliminary interconnection study identifying the Hunters Point powerplant as the point of interconnection has been completed and a detailed interconnection study to refine costs has been ordered by SFEC. (RT 197:3 - 198:1.) PG&E also acknowledged that the Final Standard Offer Contract recognizes the QF's ability to change sites. (RT 198:10:14.)

4. Commission Discussion.

The Commission will address the issues in the order the Committee asked the parties to brief the demand conformance issues.

a. Requirement for an Executed Contract

The first issue follows:

- Is an executed power purchase agreement needed for an affirmative finding of need under the 1992 Electricity Report (ER 92)?

ER 92 states:

The Energy Commission will apply the following requirements...in its need determinations:

...

2. SFEC shall disclose contract terms and conditions.

Any applicant who proposes to sell power from a facility to a utility must have for certification or a small power plant exemption a fully executed contract or series of contracts specifying the terms and conditions under which a utility agrees to purchase the project's power. At the time of application, an applicant must file whatever agreements, documents, or other information exist regarding such terms and conditions and describing the operating characteristics of the proposed project. The Energy Commission

will not require a fully executed power purchase agreement as a condition of data adequacy. *The applicant must, however, file the fully executed contract(s) in time for any necessary analyses to be completed prior to any final decision in the siting case and in any event prior to certification.* The Energy Commission may process siting cases on the basis of an agreement executed between the utility and the QF but which still awaits regulatory approval. (ER 92 at pp. 132-133; Emphasis added.)

The foregoing provision became effective upon adoption of ER 92 by the Commission on January 6, 1993. Approximately one year later, on January 1, 1994, the following provisions of Public Resources Code section 25523.5 became effective:

The commission shall make an affirmative finding pursuant to subdivision (f) of section 25523 if the proposed facility is either of the following:

(a) *The result of the Public Utilities Commission's Final Standard Offer No. 4 auction on the Request for Bids issued in August 1993.*

(b) The result of a utility's competitive solicitation for new generation resources which limits the amount of new generation to an amount of capacity or energy at or below the amount of capacity or energy determined to be needed for the utility through the integrated assessment of need for new resource additions determined pursuant to subdivisions (a) to (f), inclusive, of section 25305 and adopted pursuant to section 25308, and in effect at the time that the solicitation was developed, provided that the application for certification for the proposed facility is filed within 18 months *after contracts have been executed* from the utility's competitive solicitation. [Emphasis added].

Rules of statutory construction require that section 25523.5 be given precedence over administrative policy actions in ER 92 due to both the statute's status as a legislative enactment and its subsequent date of adoption. Thus, any expression or interpretation of ER 92 which is inconsistent with the provisions of section 25523.5 is impermissible.

By its clear language, subsection (a) provides that a proposed facility is deemed "needed" if it was the result of the CPUC's 1993 BRPU auction. This subsection does not require an executed contract for the proposed facility to receive an affirmative need finding. Moreover, the absence of a requirement for an executed contract in subsection (a) and the presence of such a requirement in subsection (b) seems to the Commission to reflect a legislative intent not to require an executed contract for CPUC BRPU August 1993 auction winners. Since section 25523.5 does not appear vague in these provisions, the Commission's prior administrative action in ER 92 requiring such an executed contract for the need determination has been superseded by legislative action.¹⁵

Thus, ER 92 cannot be read to require SFEC to produce a fully executed contract in order for the Energy Commission to make the affirmative finding of demand conformance. Instead, an affirmative finding of demand conformance must follow a demonstration that the proposed project was the BRPU bid winner. The undisputed evidence in this record is that the SFEC project is the "result of the Public Utility Commission's Final Standard Offer No. 4 auction on the Request for Bid issued in August 1993." (7/6/95 RT 20:9-12.)

Consequently, the Commission finds that by operation of section 25523.5 the proposed facility affirmatively conforms to section 25523(f).

Although the Commission believes that the foregoing analysis and conclusion should be dispositive of the demand conformance issue, it nonetheless will proceed with a review of other demand conformance issues raised during the proceeding to more fully explore contentions raised by various parties.

¹⁵ The requirement in ER 92 for a power purchase agreement can be interpreted as an informational requirement needed to conduct certain analyses regarding the environmental impacts of the operation of the facility in accordance with contractual provisions, rather than to establish the existence of the contract per se. Given that the informational needs for the environmental analyses can be obtained by other means and that the FSO4 contract itself contains some operational information, there is no basis stated in ER 92 to require production of a contract *indirectly* for environmental analysis where it cannot be required directly under section 25523.5 for demand conformance.

b. Existence of a Valid Executed Contract

The next issue in the COMMITTEE ORDER RE ADDITIONAL ANALYSIS is:

- Does a power purchase agreement exist in a legal sense?

Assuming *arguendo* that the requirement in ER 92 for a power purchase agreement prior to certification controls the provisions of section 25523.5, then the foregoing question must be answered affirmatively for certification. However, this issue has two components. First, was there an offer and acceptance, together with compliance with the Milestone Procedures, so as to create a valid FSO4 contract? Second, if a valid FSO4 contract existed as of February 1995, was it invalidated by the FERC Order on the BRPU?

i. Existence of the Contract

The record shows that there is a dispute between SFEC and PG&E regarding the legal existence of an FSO4 contract. SFEC offers the FSO4 contract (Ex. 1) which it signed and delivered to PG&E in April 1994, as evidence of an executed contract. PG&E contends that the absence of its signature on the FSO4 contract and SFEC's failure to meet all Milestone Procedures demonstrates the non-existence of an executed contract.

The parties argue that a contractual dispute can only be decided in a judicial forum. This judicial jurisdiction does not, however, preclude the Commission from determining *for its own purposes* whether an executed FSO4 contract exists using the general body of law available to another forum.

ii. Offer and Acceptance

The FSO4 contract is a creation of the CPUC. A review of applicable Orders demonstrates that the CPUC regards the FSO4 contract as a legally mandatory offer by the

utility requiring only acceptance by the QF. In its Order¹⁶ settling issues on FSO4 contracts, the CPUC stated a chronological overview of "How Final Standard 4 Works" which is partially restated below:

The first step is the utility application. Following the latest Electricity Report of the California Energy Commission (CEC), the Pacific Gas and Electric Company (PG&E), the San Diego Gas and Electric Company (SDG&E), and the Southern California Edison Company (Edison) each file a resource plan with a 12-year planning horizon. The plan identifies potential resource additions that SFEC believes are cost-effective for its system. The plan states the cost associated with each such resource and the point in the planning horizon that resource becomes cost-effective.

...

The second step is hearings on the utility applications. The Commission's public staff and other participants critique each resource plan.

...

The third step is Commission determination of avoidable plants for the respective utilities. Avoidable plants are essentially the cost-effective resource additions appearing in the first eight years of the resource plan scenario chosen by the Commission. This choice is the key Commission act in the long-run standard offer process.

...

The fourth step is the utilities' solicitation process and QF auction. After making any modifications ordered by the Commission, the utilities announce the availability of long-run standard offer contracts based on the capacity and the fixed and variable costs of the avoidable resource(s). QFs have a three-month solicitation period to respond. Each interested QF indicates (1) the resource that the QF seeks to avoid, (2) the QF's own technology and capacity, and (3) the QF's bid, which is the lowest percentage of the resource's fixed costs that the QF would be willing to except. The bid cannot exceed the resource's fixed costs. The utility opens the responses at the end of the solicitation...

¹⁶ D.87-05-060 [24 CPUC2d. 253, 258-259] May 29, 1987.

Contract signing occurs after the winning bidder^[17] complies with the prerequisites of the QF Milestone Procedure, roughly one year after the utility applications.

The CPUC's policy regarding offer and acceptance of a standard offer contract appears to have been established in the context of the earlier *Interim* Standard Offer, the contractual predecessor to the Final Standard Offer. In 1985, the CPUC effectively suspended¹⁸ Interim Standard Offer No. 4 following a rush of contract signing by private developers which committed the utilities to purchase their new electrical generation. The standard offers had been created by the CPUC to implement the federal Public Utilities Regulatory Policy Act (PURPA), which mandated public utilities to purchase privately cogenerated electricity to further energy efficiency and conservation. The standard offers were available to all takers. At the time, California's major utilities opposed the standard offers, arguing that the developer-signed offers created far more new electric generation than was forecast to be needed and the price for such electricity was too high.

However, the CPUC's suspension of the Interim Standard Offer No. 4 on May 17, 1985 created a class of developers who had signed the available contracts before May 17th, but the receiving utility had not signed the contracts. Thus, an issue arose to clarify whether an Interim Standard Offer No. 4 contract signed by the QF, but not the utility, was a valid contract for the sale of electricity.

The CPUC addressed this issue in D. 85-06-163 [18 CPUC2d 264, 277]:

¹⁷ "Designation of the winning bidders does not constitute 'award' of Final Standard Offer 4 contracts to those bidders. They are entitled to Final Standard Offer 4 contracts, provided they comply with contract-signing prerequisites of the QF milestone procedure in timely fashion. This follows from our direction in D.86-07-004 that the QF developer need not satisfy all contract-signing prerequisites at the time its bid is submitted." (24 CPUC2d 253, 260.)

¹⁸ D.85-04-075.

In the case of a standard offer, we believe that our prior orders have provided us with clear directions on this issue. Those decisions, as recited above, demonstrate that the standard offer is to be a contract in the "traditional" legal sense and not just a form requiring further utility negotiation or approval. The "offer and acceptance" theory of mutual assent to contract terms is precisely the approach we adopted for the standard offer. The terms of the agreement are those which the utility is obligated to offer, which the utility has participated in crafting, and from which no utility can deviate, except in the case of a nonstandard agreement. The offer embodying those terms is to be extended by the utility to all qualifying facilities for their "acceptance." Once accepted, the utility is to have no discretion in refusing the agreement or altering its terms. *A contract is formed with the qualifying facility's acceptance of those terms which would be indicated by a standard offer completed and signed by the qualifying facility and delivered to the utility.* (Emphasis added.)

On November 24, 1993, PG&E petitioned¹⁹ the CPUC to insert language in the FSO4 contracts to reflect PG&E's view and concern that it was not freely entering into the FSO4 contract. The CPUC rejected PG&E's request to change the contract from a "Power Purchase Agreement" to a "Power Purchase Obligation" restating the CPUC's view that standard offers were "conventional bilateral contracts" with benefits flowing to both the utility and the QF from the use of a standard offer contract (52 CPUC2d 453):

[The CPUC] originally developed the standard offers to reduce the transaction costs of negotiating contracts between utilities and QFs, to neutralize the tremendous bargaining advantage the utilities possess as the only available purchaser of QFs' power, and to give the utilities assurance by presenting examples of packages to terms and conditions that are deemed reasonable. (52 CPUC2d 452.)

PG&E argued that it was *compelled* by the CPUC to enter into the FSO4 contracts. While the CPUC expressed that PG&E stated the point "too strongly" it nonetheless acknowledged that "... any compulsion underlying the utilities' standard offers is based on our regulatory authority and our desire to promote competition in electric generation and to comply

¹⁹ 52 CPUC2d 451; D.93-12-035.

with PURPA." (52 CPUC2d 453.) The CPUC accepted PG&E's requested addition of language stating, "PG&E's obligation to purchase under this Agreement derives in part from the orders of the California Public Utilities Commission." (52 CPUC2d 455.)

On April 27, 1994, PG&E filed (I.89-07-004 & I. 90-09-050) a motion requesting that the CPUC issue an order suspending the Hunters Point IDR arguing that the CPUC's proceeding on electric industry restructuring effectively superseded PG&E's January 10, 1994, announcement of the SFEC project as the BRPU winner. Among the issues discussed was whether an FSO4 contract exists.

The CPUC cited D.85-06-163 [18 CPUC2d 264], referred to above, indicating that an Interim Standard Offer a contract is formed when the QF completes, signs and delivers the standard offer contract to the utility. (D. 94-06-050; Slip Opinion at p. 9.) The CPUC reviewed AES's (i.e., SFEC) claim that it had signed the contract and satisfied all of the conditions precedent found in the Milestone Procedure which needed to be performed within the prescribed 180 days from the announcement of the winning bidder. PG&E argued that not all of the conditions precedent had been performed precisely as required. AES (SFEC) admitted some defects in performance but claimed they were immaterial or in the process of being cured. (Slip Opinion at p. 10.)

The CPUC declined to answer the issue of contract existence since completion or correction of all conditions precedent was pending. However, the CPUC denied PG&E's motion to suspend the Hunters Point IDR citing the unique reliability-based need for generation in the San Francisco area. (Slip Opinion at pp. 10, 11 & 14.)

There is thus no dispute that the CPUC regards the FSO4 as a mandatory offer made by operation of law, requiring only QF acceptance and satisfactory completion of Milestone Procedures. Thus, PG&E's signature would not be required for the FSO4 contract to be executed. However, satisfactory completion of the Milestone Procedures is a necessary precedent to formation of the FSO4 contract.

Witnesses from PG&E testified that the utility believed that SFEC had not completed all of the prerequisites (Milestone Procedures) sufficient to complete the FSO4 contract. (7/6/95 RT 196:2-6.) The only conditions outstanding were SFEC's identification of two sites (the FSO4 contract calls for one site), and lack of site control being demonstrated for the Port site. (RT 196:7-16.) PG&E acknowledged that the Final Standard Offer Contract recognizes the QF's ability to change sites. (RT 198:10:14.) The PG&E witness did not know whether a Memorandum of Understanding between SFEC and the Port of San Francisco would satisfy the site control condition. (RT 199:11-15.) According to PG&E, SFEC has not submitted such a Memorandum of Understanding to PG&E for its review. (RT 201:16-20.)

SFEC submitted its AFC with two sites, the Innes Avenue site and the alternate Port site. No one questions that SFEC had site control over the Innes Avenue site at the time of filing. The Port Commission staff initialled a lease for the Port site on April 13, 1995, which is subject to approval by the Port Commission and the Board of Supervisors. In response to the Committee's ORDER TO SHOW CAUSE, dated 5/16/95, SFEC withdrew the Innes Avenue site from licensing consideration.

The Energy Commission notes that at all times the Port site was offered by SFEC as an alternative consistent with California Environmental Quality Act (CEQA) review which seeks to identify environmental impacts and lessen or eliminate these impacts through mitigation or alternatives. The *Preliminary Staff Assessment* in its review of potential environmental impacts identified significant impacts at the Innes Avenue site which were arguably not mitigable.

The Commission does not need to make findings on potential impacts at the Innes Avenue site since it has been withdrawn. However, the Energy Commission's implementation of the CEQA review process was instrumental in SFEC's choice to withdraw the Innes Avenue site and proceed with only the Port site.

When the FSO4 contract itself permits selection of an alternate site, it would be contrary to good public policy to so strictly interpret the site selection and site control provisions of the

FSO4 contract so as to prevent or limit the Commission's CEQA review from identifying an alternative site as the best means to eliminate potential significant adverse environmental impacts.

No public benefit nor contractual necessity has been suggested to be so compelling that the usual CEQA review process should be constricted in seeking to mitigate or eliminate environmental impacts. Since a BRPU FSO4 contract-holder can only construct its proposed facility with the Energy Commission's approval, the controlling consideration should be the siting outcome of the Commission's comprehensive review and mitigation, not the site selection as initially submitted.

Additionally, it appears that preliminary control of the Port site has been obtained and final site control awaits a vote after completion of the Energy Commission's licensing review. SFEC would be in a "Catch-22" if it could not obtain site control from the Port/City without Commission certification, but on the other hand could not obtain Commission certification without prior Port/City action to give it site control. Thus, from the Energy Commission perspective, the site selection and site control prerequisites appear to be sufficiently satisfied so that there is no failure to substantially comply with the Milestone Procedures necessary for formation of the FSO4 contract.

Therefore, for Commission purposes, a fully executed, valid FSO4 contract is deemed to exist.

iii. The FERC Order invalidating the BRPU

A collateral issue arises as to whether the Orders of FERC on SCE's and SDG&E's petitions, declaring the CPUC's BRPU process in violation of PURPA renders the SFEC/PG&E FSO4 contract invalid.

On February 23, 1995, FERC issued its "Order on Petitions for Enforcement Action Pursuant to section 210(h) of PURPA."²⁰ On the Petitions of SDG&E and SCE,²¹ FERC declared that the CPUC's BRPU impermissibly limited the QF-only bid process and therefore violated PURPA by assuming that any QF contract would be below the utility's benchmark price which would itself be below avoided costs. Since the utility's avoided costs are defined in FERC regulations as the cost of replacement energy the utility could generate itself or purchase from other sources (18 C.F.R., §, 292.101(b)), failure to take into account the cost of replacement energy from other sources meant that the BRPU benchmark price was not necessarily reflective of avoided cost. Since the CPUC relied on a benchmark price and bidding process to establish avoided costs, the process violated PURPA by being limited to QF sellers only rather than all potential sources. FERC ordered that SCE and SDG&E were not required to enter into the BRPU contracts in their respective auctions. (Slip Opinion at p. 26.)

As to the applicability of its Order beyond SCE and SDG&E, FERC stated at p. 27:

However, we do not believe it would be in the public interest to invalidate the QF contracts that have resulted from prior solicitations in California or elsewhere that have not been challenged and are pending. Consistent with our recent order in CL&P, we will not entertain requests to invalidate preexisting contracts in which avoided costs were established pursuant to a state bidding procedure that did not allow all-source bidding unless such issue has been raised and is pending or is raised in a timely appeal of a state decision. We believe that the appropriate time in which to challenge a state-imposed rate for a QF purchase is up to the time the purchase contract is signed, not years into the contract.

Not only did the CPUC seek reconsideration of the entire FERC Order, but PG&E and AES, representing SFEC, filed with FERC to clarify the effect, if any, of the Original FERC Order on the PG&E/SFEC FSO4 contract.

²⁰ Docket Nos. EL95-16-000 and EL95-19-000 (hereinafter "Original FERC Order").

²¹ PG&E was not one of the original petitioners.

On June 2, 1995, FERC issued its Order on Requests for Reconsideration, denying reconsideration on the central issue of whether the CPUC's BRPU process violated PURPA's avoided cost setting provisions. FERC did not directly address any requested clarification as to the applicability of the Original FERC Order to PG&E or AES/SFEC. To the extent that any statement was made which sheds light on the intended scope of its invalidation of BRPU contracts, FERC noted that SCE and SDG&E raised their legal challenges,

before the date they otherwise would have been compelled to execute purchase contracts with the winning bidders in the BRPU process. As the Commission [FERC] has explained in recent orders, issued after the date of the February 23 order, it does not intend to entertain belated challenges to executed PURPA purchase contracts and is extremely reluctant to upset the settled obligations of parties to, and to invalidate any of their obligations and responsibilities under, executed PURPA purchase contracts. Here, however, the expectations of the parties had not yet been settled in signed contracts codifying Edison's and San Diego's purchase obligations, and the challenge to the California Commission's [CPUC] orders was timely. (Emphasis added). (Slip Opinion at p. 10.)

The Energy Commission has taken notice of the records of the CPUC pertaining to the PG&E/SFEC FSO4 contract in question. Those records do not suggest that PG&E launched a challenge to the SFEC contract which was comparable in scope or timing to the challenges of SCE or SDG&E to their BRPU contracts. Therefore, it is logical to presume that any PG&E challenge would not be covered within the scope of the original FERC Order.

Furthermore, the general doctrine of detrimental reliance also appears applicable here since SFEC has acted in reliance upon government actions and the terms of the FSO4; reliance began with SFEC's participation in the BRPU auction.

In the fall and winter of 1993/1994, the BRPU was in flux. This resulted from the major California utilities' suspending their solicitations claiming auction prices were too high. Nonetheless, the CPUC directed PG&E to announce the Hunters Point IDR winner since that IDR was based on reliability considerations. (D.94-01-020.) Following this January 10, 1994, announcement, SFEC undertook to secure a letter of credit for the project fee, secure a site,

satisfy the other Milestone Procedures, and prepare the Application for Certification (AFC) for submittal to the Energy Commission.

In April 1994, PG&E petitioned the CPUC seeking to suspend the Hunters Point solicitation claiming the electric industry restructuring initiative had effectively ended the BRPU process. PG&E's petition was denied on June 22, 1994. (D.94-06-050.) In denying the suspension, the CPUC noted that as of that time AES (representing SFEC) had spent over several million dollars to that point in pursuing the BRPU. (Slip Opinion at p. 10.) Moreover, the CPUC restated the unique attributes of the Hunters Point IDR and the necessity of a QF located in San Francisco or northern San Mateo County.

SFEC submitted its AFC to the Energy Commission on July 29, 1994. Since Commission acceptance of the AFC for review on September 7, 1994, SFEC has expended additional monies and substantial effort to supply information to the Commission staff and others in order to obtain certification of its project. SFEC has relied on the terms of the FSO4 contract in pursuing licensing. Even though engaged in negotiation with PG&E to modify the FSO4, the standard FSO4 has remained the contract to which all parties would have to return if negotiations did not produce another contract.

Thus, in the absence of language in the FERC Order on Requests for Reconsideration specifically applying this ruling to PG&E's BRPU participation or to the PG&E/SFEC FSO4 contract, **and** with a valid, executed FSO4 contract upon which SFEC has acted in detrimental reliance, the Commission concludes that the FERC orders do not invalidate the PG&E/AES (SFEC) FSO4 contract nor otherwise bar further processing of the siting application.

Therefore, even, if the requirements of ER 92 requiring an executed contract were to prevail in light of the provisions of the Public Resources Code section 25523.5, the Commission finds that, for the purposes of its determination, a valid, executed FSO4 contract exists between PG&E and SFEC arising from the BRPU auction. In this case, the proposed project would also be needed.

c. Integrated Assessment of Need

The Commission will proceed with its review of other demand conformance issues as to other bases for an affirmative need finding in order to make this Decision sufficiently comprehensive to address matters raised by all parties in this proceeding.

The Energy Commission conducted an Integrated Assessment of Need as part of the ER 92 process. For the PG&E service area, the Commission found that the PG&E system will have sufficient capacity to meet its target reserve margin through the year 2009. Overall, PG&E has an opportunity to economically add new capacity by systematically displacing generation from less efficient and more polluting plants while lowering the total cost of operating its system. (ER 92 at p. 95.)

The Commission concurred with its Staff and PG&E that:

the repowering of Hunters Point Units 2 and 3 is a socially least cost-option in 1999^[22]. The San Francisco constraint, which requires that 50 percent of PG&E's system need in San Francisco be met by local generation on the San Francisco peninsula, makes the repower cost effective. The Hunters Point repower would reduce fuel costs significantly by taking over system support responsibilities from older steam units at Potrero and Hunters Point.

... The need for the repower assumes the new unit operates as a must-run plant. It would replace existing, less efficient plants in this capacity. The resulting fuel and air emissions savings make the project cost-effective. This resource would not be cost effective as soon as it is if it did not relieve older plants of system support responsibilities. (ER 92 at p. 96.)

Thus, the Energy Commission identified the Hunters Point IDR for acquisition under ER 92. (ER at p. 97.) In turn, the CPUC included the Hunters Point IDR in the BRPU bid process. Ultimately, the SFEC project was declared the winner of the BRPU bid.

²² The CPUC found the Hunters Point repower to be cost-effective in 1997. The Energy Commission agreed on 1997 to avoid regulatory delay and uncertainty. (ER 92 at p. 96.)

To win this bid, the SFEC project was necessarily more cost-effective than the PG&E benchmark price for the Hunters Point repowering. Thus, the SFEC bid also would be more cost-effective than the ER 92-established level of cost-effectiveness which made the Hunters Point repowering the socially least-cost option. By winning the BRPU bid, SFEC's project is preferable to ER 92's socially least-cost option (i.e., PG&E's Hunters Point repowering) and thus complies with the Integrated Assessment of Need of ER 92.

i. San Francisco Operating Criterion

As noted above, ER 92 at pages 95-96 stated:

The San Francisco constraint, which requires that 50 percent of PG&E's system need in San Francisco be met by local generation on the San Francisco peninsula, makes the repower cost-effective.

The "San Francisco constraint" is PG&E's San Francisco Operating Criterion (SFOC). In determining need in the PG&E service area in ER 90 and ER 92, the Energy Commission used the SFOC. The SFOC requires at least 50 percent of San Francisco's electricity demand be met by generation located on the peninsula.

On April 1, 1994, PG&E filed with the CPUC its *Report on the Reasonableness of Electric Operations for 1993*. In pertinent part this report states:

In early 1992, PG&E revised the SFOC (San Francisco Operating Criterion) to reflect the increased transmission capability due to the reconductoring and improved transmission reliability due to upgraded protective relaying and SCADA operations.^[23]

²³ The reinforcing project, completed in 1991, included reconductoring the overhead 115 kV transmission lines between San Mateo and the Martin Substations, installation of upgraded protective relays, and the installation of a supervisory control and data acquisition (SCADA) system to enhance the monitoring and operation of the San Francisco distribution network.

Prior to this revision, the SFOC required at least 50 percent of the total San Francisco load to be supplied from local generation during the daytime hours Monday through Saturday. During the remaining hours, the local generation was dispatched based on economics. Currently, the local generation is dispatched economically during all hours of the day except when the San Francisco area load requires local generation to be loaded to a level higher than economic dispatch. Normally, Potrero Unit No. 3 (207 MW) and Hunters Point Unit No. 4 (163 MW) are sufficient to meet the SFOC criterion due to their capacity and because they are the most efficient San Francisco units. However, when either Potrero Unit No. 3 or Hunters Point Unit No. 4 is shut down for maintenance or is otherwise limited, the other Hunters Point Units (Unit Nos. 2 or 3 or both) or the combustion turbines are placed in service to meet the SFOC. (Pages 2-36 through 2-39.)

The PG&E report was introduced into the administrative record of this proceeding. An issue then arose as to whether PG&E's 1992 revision of the SFOC (the "new" SFOC) was known and taken into account in arriving at PG&E need findings when ER 92 was adopted in January 1993.

In its April 28, 1995, COMMITTEE ORDER RE ADDITIONAL ANALYSIS, the Committee directed the parties to brief the following issues to address this matter:

1. Is the use of the "old" SFOC determinative of the ER 92 findings related to the identification of the Hunters Point IDR (Identified Deferrable Resource)?
2. Would the use of the "new" SFOC instead of the "old" SFOC substantially change or reverse the ER 92 need analysis for this project?

SFEC, the Staff and Intervenors responded with briefs filed on June 23, 1995.

The Intervenors elicited testimony from PG&E witnesses that, with the revised SFOC and PG&E's contemplated long term shut-down of Hunters Point Unit Nos. 2 and 3 to avoid expensive air pollution retrofits, there would not be a need for new generation capability to satisfy the revised SFOC until 2001. (6/30/95 Data Responses NEED-3.) In responses to questions regarding Data Responses ALT-18 and ALT-19, admitted into evidence, PG&E also

stated its view that, if the proposed project were PG&E's, it would defer the project until 2001 and then consider transmission upgrades, aggressive conservation measures, or new local generation projects. (5/24/95 Data Responses ALT-6.)

ER 92 generally uses "economic need" as the basis for finding new generation facilities needed. Economically needed powerplants displace older, more polluting, less efficient, and less economic powerplants with new facilities which lower the utility's system average costs.

Conformity to the SFOC, whether "old" or "new", includes a reliability consideration which is an element of "physical need" in that a definitive minimum amount of generation must be operating to meet the possible contingency. The CPUC recognized, in its decision denying PG&E's petition to suspend the Hunters Point IDR, that there are such unique reliability based considerations attendant to the IDR. (D.94-06-050.)

The Energy Commission finds no basis to conclude that the "old" versus the "new" SFOC would have changed the basic "need" finding in ER 92 since there are unique circumstances in San Francisco which require a substantial level of generation to be located in the northern peninsula. Moreover, the Commission's ER 92 analysis establishes that the older existing north peninsula powerplants should be economically displaced. Thus, any effect from the use of the "old" SFOC in identifying the need for Hunters Point repowering in ER 92 is harmless because the "new" SFOC includes *de facto* the same 50 percent generation requirement at peak loads.

d. Generic Need Test

Lastly, SFEC offered testimony to show compliance with a "generic" need test. SFEC appears to have offered this testimony as yet another means of establishing demand conformance in addition to its BRPU winner status and its executed FSO4 contract, discussed above.

As to QFs, ER 92 contemplated only the sale of power to the major utilities through the BRPU process. Consequently, there is no non-BRPU or "generic" need test for QFs to demonstrate conformity to the demand forecast.

While SFEC's generic need testimony more than paralleled the process used in ER 92 to identify and verify the socially least cost option as to PG&E and Hunters Point Units 2 and 3, there was never an existing generic need test procedure available under ER 92. In the absence of an existing generic need test, the Siting Committee or the ER 92 Standing Committee would have had to confect such a generic test in the middle of an on-going proceeding. The Siting Committee believed it would be fundamentally unfair to create new standards for adjudicating matters at-issue in the on-going proceeding. Thus, following objections by Staff and Intervenor, SFEC's offered generic need testimony was not admitted into evidence on the grounds of relevance; however, SFEC was permitted to make an offer of proof that the generic need testimony would demonstrate that the project was superior to the PG&E Hunters Point repowering socially least-cost option.

e. Transmission Interconnection Agreement

ER 92 requires an applicant to produce a transmission interconnection agreement, also known as a special facilities agreement, at p. 133:

The Energy Commission will apply the following requirements ...in its need determinations:

...

3. Adequate transmission capacity must be available.

Any applicant proposing to sell power from a facility to a utility must demonstrate that transmission capacity is or will be available from the proposed facility to the service area receiving the power... . The Energy Commission will not require a fully executed interconnection or special facilities agreement as a condition of data adequacy. The applicant must, however, file the

fully executed interconnection or special facilities agreement(s) in time for any necessary analyses to be completed prior to the final decision in the siting case or in any event prior to certification.

Having found that the terms of section 25523.5 enacted after adoption of ER 92 control the need determination and do not require a power purchase agreement, the Commission also finds that an executed transmission interconnection agreement cannot be an added requirement for the affirmative need finding. The value of a preliminary interconnection study is its aiding the Staff in analyzing the transmission system impacts of an applicant's proposed transmission interconnection.

In this instance, SFEC is proposing to interconnect at one of the locations *pre-selected* by PG&E. Presumably, since PG&E established the BRPU bid specifications knowing the amount of generation to be received and the ability of its transmission system to accept it, the Energy Commission's transmission system engineering review would not entail more than confirming PG&E's own studies. The obvious purpose of this requirement is to provide Staff sufficient information to conduct its analysis. The Commission notes that at no time during this proceeding has Staff contended it lacked sufficient transmission information, and therefore concludes that the intent of this condition has been satisfied. Thus, the preliminary interconnection study which has already been completed has sufficed for compliance with the requirement. The final interconnection study deals with private transaction costs between PG&E and SFEC which are not necessary for this Commission's transmission system engineering evaluation.

FINDINGS AND CONCLUSIONS

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

1. SFEC project is the BRPU bid winner.
2. SFEC signed an FSO4 contract in April 1994 and delivered it to PG&E in May 1994; PG&E has not signed the FSO4 contract.
3. ER 92 was adopted on January 6, 1993, and requires that, before certification, an applicant produce an executed power purchase agreement.
4. Public Resources Code section 25523.5(a) became effective on January 1, 1994, and directs that the Commission make an affirmative finding of need for a project which is the winner of the CPUC's August 1993 BRPU.
5. SFEC meets the requirements of Public Resources Code section 25523.5.
6. As a subsequent legislative enactment, Public Resources Code section 25523.5 takes precedence over policies contained in ER 92.
7. The SFEC project is needed under Public Resources Code section 25523.5.
8. The CPUC does not require the utility offering the FSO4 to formally sign the contract for it to become effective.
9. The CPUC considers an FSO4 contract binding when it has been signed by the QF, and delivered to the subject utility.
10. The CPUC requires that a QF satisfy certain Milestone Procedures, including identifying one project site and demonstrating control over that site, in order for an FSO4 contract to be considered final.
11. Terms of the FSO4 do not prohibit identification of more than one project site.
12. SFEC had originally identified two project sites, but has withdrawn the Innes Avenue site. The Commission's analysis focusses primarily on the only remaining site, that at the Port.
13. Identification of the Port site is sufficient to comply with the FSO4 Milestone Procedures for Energy Commission purposes.

14. SFEC has reached tentative agreement with the Port of San Francisco for leasing the Port Site for project use.
15. Final approval of the lease for the Port site will not occur until after the Energy Commission's licensing process has concluded.
16. SFEC has demonstrated sufficient commitment to control of the Port site for Energy Commission purposes.
17. A valid FSO4 contract exists between SFEC and PG&E within the meaning of ER 92.
18. The Federal Energy Regulatory Commission (FERC) issued an Order on February 23, 1995 invalidating the CPUC's BRPU.
19. By its terms, the FERC Order referred to in Finding 18 above applies to SCE and SDG&E; this Order specifically disavows any intention to "invalidate preexisting contracts."
20. PG&E and SFEC petitioned FERC to clarify the effect of the Order mentioned in Finding 18 above upon the PG&E/SFEC FSO4 contract.
21. FERC issued its Order on Requests for Reconsideration on June 2, 1995, but did not directly address the matters raised in Finding 20 above.
22. SFEC relied on directions from the CPUC in pursuing the BRPU process.
23. SFEC has expended significant sums of money in following regulatory directives pertaining to the BRPU process set forth by the CPUC.
24. In ER 92, the CEC determined the Hunters Point repowering project to be the socially least-cost option.
25. In ER 92, the CEC identified the Hunters Point IDR for acquisition.
26. The CPUC included the Hunter's Point IDR in the BRPU bid process.
27. By winning the BRPU bid process, the SFEC project is necessarily more cost-effective than the level established in ER 92, and is therefore preferable to the Hunters Point IDR.
28. The SFEC project complies with the ER 92 Integrated Assessment of Need.
29. Effectively, the SFOC requires that approximately 50 percent of San Francisco's peak load electricity demand be met by local generation in the San Francisco peninsula.

30. The CEC relied upon the SFOC in determining the need for generation resources in the PG&E service area in ER 92.
31. The PG&E SFOC is based upon both economic and reliability considerations.
32. PG&E revised its SFOC following 1991 peninsula transmission upgrades.
33. Results of ER 92 analyses do not change regardless of whether the original ("old") or revised ("new") SFOC is used.
34. ER 92 does not provide for demand conformance analyses under a "generic" need test.
35. The purpose of the transmission interconnection agreement contained in ER 92 is to provide Staff with information sufficient to perform a transmission system engineering analysis.
36. Staff has obtained sufficient information to perform its transmission system engineering analysis in this proceeding.
37. A fully executed transmission interconnection agreement, as mentioned in ER 92, is not required prior to the final Decision in the present case.

CONDITION OF CERTIFICATION

None.

LAND USE

The Land Use analysis evaluates the current land uses in the Bayview Hunters Point community, applicable land use plans, and the compatibility of the proposed project at the Port site on Cargo Way with applicable laws, ordinances, regulations and standards.

1. Setting.

Community. The Bayview-Hunters Point community is bounded by Highway 101 to the west, the San Mateo County line to the south, San Francisco Bay to the east, and Army Street to the north. (LAND USE FIGURE 1.)

This community has, historically, "...been the focus of some of the City's noxious and unhealthy industries...", first as the site of numerous slaughterhouses and subsequently as an area dominated by wrecking yards, junk yards, ship repair, steel manufacturing, materials recycling facilities, and power generation facilities (CCSF 1994a). (FSA, Vol. I, p. 465.)

The closure of the Hunters Point Naval Shipyard in the early 1970's resulted in a loss of nearly 10,000 jobs and a subsequent decline in local commercial activity. The Hunters Point shipyard is currently the focus of a massive military base conversion plan; the Recreation and Parks District is developing a major shoreline park and open space along India Basin; and the San Francisco Municipal Transit District is planning a light rail expansion along Third Street into the heart of the community. (FSA, Vol. I, p. 465.)

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Port Site. The proposed site (herein site) is a portion of a developed parcel created from Bay fill to serve the needs of the Port of San Francisco and includes the Port's consolidated containerized shipping operation at Piers 94/96 as well as a rail yard that serves as the intermodal container transportation facility (ICTF), a major link between foreign shippers and markets throughout the United States. (FSA, Vol. I, p. 474; see, LAND USE FIGURE 2.)

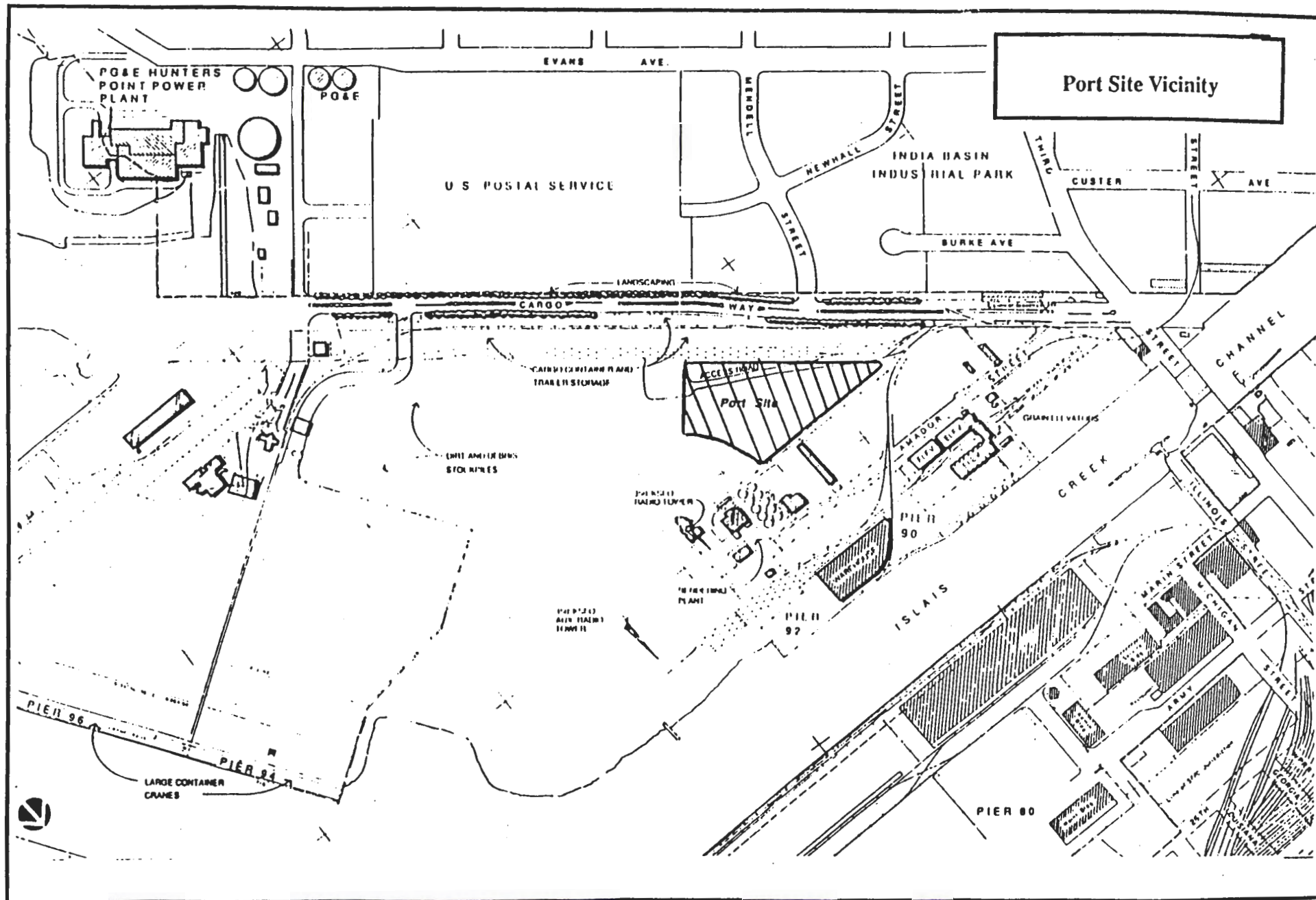
North of the site large unused grain elevators are situated along Islais Channel. Northeast are large cargo container cranes at Pier 92; east are more container cranes at Piers 94 and 96. Three 350' high radio transmitting towers are also east of the site, as well as the Darling International, Inc., animal rendering plant. A sand and gravel operation is near the mouth of Islais Creek at the edge of San Francisco Bay. (AFC, p. 5.4-2.)

South of the site, Cargo Way defines the northern boundary of the India Basin Industrial Park. The Industrial Park has a wide landscaped street with one- and two-story concrete industrial buildings. A large United States Postal Service sorting facility is the major tenant of this Industrial Park. (AFC, p. 5.4-2.)

East of the India Basin Industrial Park is PG&E's Hunters Point powerplant, at Evans Avenue and Jennings Street. This powerplant is a large exposed structure with five stacks ranging in height from 150 to 250 feet. There are nine on-site fuel storage tanks. (AFC, p. 5.4-7.)

The closest residential area is south of Evans Avenue and east of Mendell Street, approximately 2,000 feet south of the site. Given the hillside setting, some of the houses have a view toward the site. Such views already include the PG&E Hunters Point powerplant, the grain elevators, the cargo container cranes, port warehouse buildings, and the radio transmitting towers. (AFC, p. 5.4-7.)

LAND USE FIGURE 2
Port Site Vicinity



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES
SOURCE: Adapted

PLANNING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1995.
1. SFEC, 1994, Fig. 5.11-3.

(Source: FSA, Vol. I, LAND USE FIGURE 9.)

The Potrero Hill residential neighborhood is located approximately 1 mile northwest of the Port site. The Bernal Heights neighborhood is approximately 1.5 miles west of the site, across Highway 101. Views from the Bernal Heights neighborhood are primarily oriented north and south, but a limited number of housing units have views eastward toward the site.

2. Land Use Plans.

There are a multitude of state, regional and local agencies which have plans or policies that delineate planning standards for development at the site.

State and Regional Agencies. As lead agency, the Energy Commission implements the provisions of the CEQA which for present purposes addresses: (1) potential conflicts with adopted environmental plans and community goals; (2) potential growth inducement; (3) population displacement; (4) physical disruption or division of an established community; and (5) potential conflicts with recreational, educational, religious, or scientific uses in an area.

The State Lands Commission has oversight authority over lands held in public trust pursuant to Public Resources Code section 6701. The Burton Act (1968) granted the City and County of San Francisco authority to manage Port lands. Through the Port of San Francisco, this authority includes the granting of leases of property held in public trust.

The Bay Conservation and Development Commission (BCDC), a State agency, and the Metropolitan Transportation Commission (MTC), a regional agency that serves both as a federally-mandated Metropolitan Planning Organization and as a State-mandated Regional Transportation Planning Agency, have developed the Bay Area Seaport Plan (Seaport Plan). The Seaport Plan, administered by BCDC, establishes overall policy direction for growth and development of the Bay Area's six seaports. (AFC, p. 5.4-9.)

Additionally and separately, BCDC has prepared the Bay Plan to regulate development within the 100 foot mean high tide line. BCDC also prepared the San Francisco Waterfront

Special Area Plan to guide development of properties which the Port of San Francisco had declared surplus to Port needs. BCDC participated in the Powerplant Non-Siting Study with the Energy Commission and the California Coastal Commission to identify San Francisco Bay sites which were unsuitable as powerplant sites due to inconsistencies with the Bay Plan.

Master Plan. The City Master Plan consists of mandatory policy elements and area plans for established neighborhoods within the City, including the Bayview-Hunters Point community. The area plans are functionally separate from the Master Plan, but because of similar content requirements can be considered to be "mini-Master Plans" for smaller geographic areas.

In addition to the mandatory elements of the Master Plan, there are optional elements which are pertinent to this review, including the Commerce and Industry Element, the Environmental Protection Element, the Urban Design Element, and the Central Waterfront Element.

South Bayshore Plan. An element of the Master Plan, the South Bayshore Plan, is in the process of being revised. Even though not adopted, the Draft South Bayshore Plan has been sufficiently developed and publicly reviewed to warrant review in this proceeding.

San Francisco Municipal Planning Code. Whereas the Master Plan provides general land development guidelines, the Municipal Planning Code (Planning Code) provides specific, detailed guidance regulating development within the City.

Port of San Francisco - Draft Waterfront Land Use Plan. As a sub-agency of the City and County of San Francisco, the Port is preparing a Draft Waterfront Land Use Plan which includes identifying Port properties which are not essential to future maritime activities and thus would be available for non-maritime uses.

3. Potential Impacts.

The fundamental land use question is whether the proposed energy project complies with all applicable land use plans for the Port site and is otherwise compatible with current and future uses. Intervenor raised an issue of whether the proposed project would nonetheless be inconsistent with the Bayview Hunters Point neighborhood residential uses now and in the future even if it does comply with applicable land use plans.²⁴

4. Summary of the Evidence.

a. SFEC

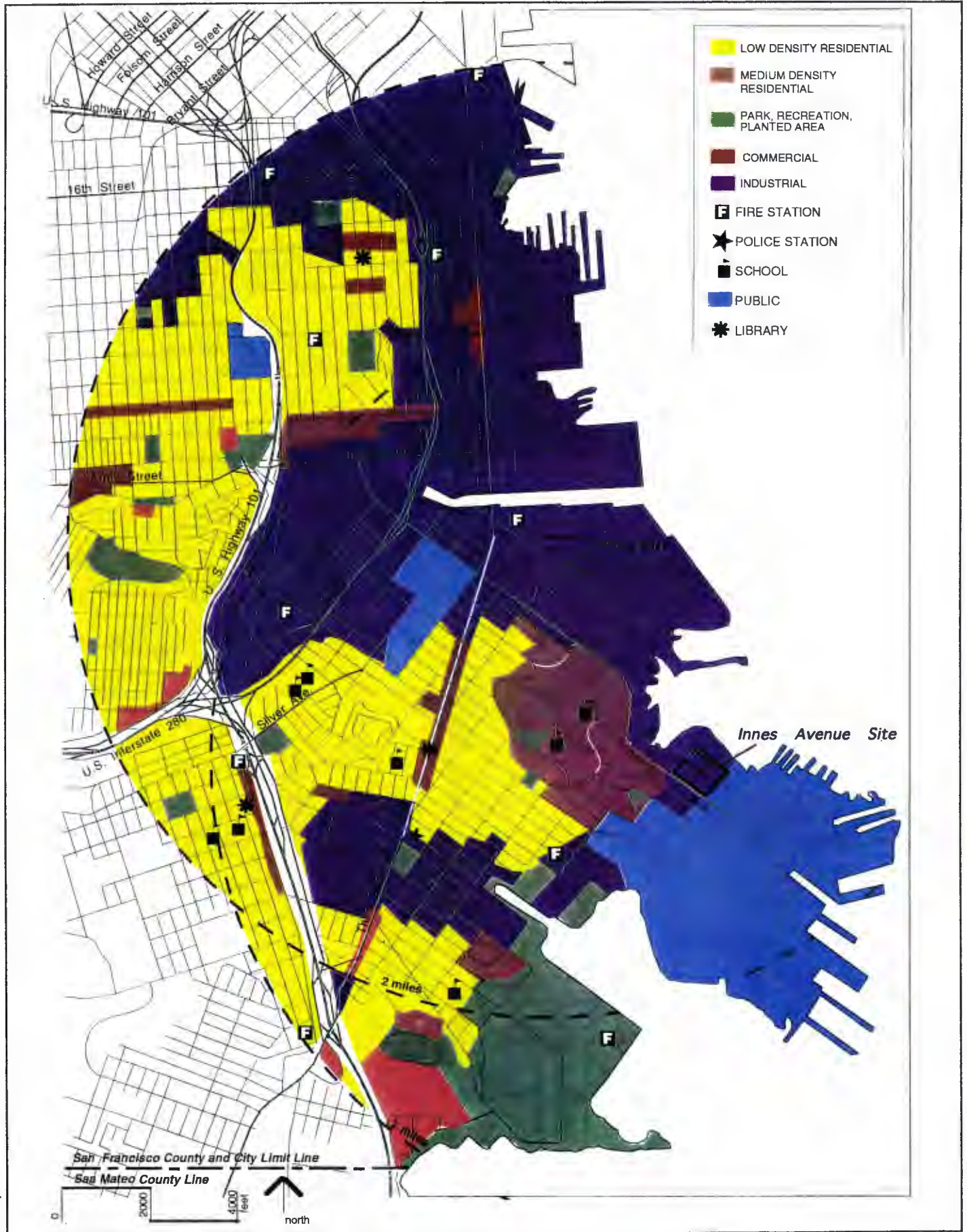
SFEC presented a map showing the current land uses in Bayview-Hunters Point, showing low and medium density residential development, commercial and industrial development, and parks. (AFC, Figure 5.4-3 (Attached).) SFEC also presented an existing zoning map, identifying the M-2 designation for the Port Site itself and a significant portion of the surrounding area within 3/4 mile. (LAND-1.3 (Attached).) The M-2 zoning is Heavy Industrial.

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²⁴ This latter matter is also a cross-over issue with the Environmental Justice issue, which is treated in a separate section of this Decision.



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Section 210.6 of the Municipal Planning Code defines the zone as "...the least restricted as to use... with fewer requirements as to screening than M-1 districts ...". A steam powerplant is a permitted use in a M-2 zone. (AFC, p. 5.4-22.) Sensitive receptors exist near the site, including two schools, eleven churches, one mental health facility and three community centers within 3/4 mile of the proposed project. (AFC, Supp. LAND-1.15 (Attached).)

Reviewing each of the applicable agencies' plans, SFEC's witnesses stated that the project complied with CEQA requirements, was leased by the Port in accordance with public trust lands requirements, was consistent with the BCDC Seaport Plan, the Bay Plan, and the Waterfront Special Area Plan. With respect to local land use plans, SFEC's witnesses testified that the project was consistent with the mandatory and optional elements of the City's Master Plan. In particular, by being a cogeneration project, the proposed project was the type of alternative energy use necessary to comply with the Energy Element of the Draft South Bayshore Plan. Additionally, the proposed project is within an area designated "Industrial" in the Draft South Bayshore Plan, as well as being consistent with the Port's Draft Waterfront Land Use Plan and future Redevelopment Agency plans. (7/14/95 RT 11:6-10.) The Planning Code exempts structures and equipment for industrial plants from the otherwise applicable (Planning Code, § 260(b)) 40 foot height limit. (AFC, p. 5.4-22.)

The witness also identified anticipated future development in the Bayview Hunters Point area, concluding that the powerplant project was consistent with those possible projects and would not create an adverse cumulative land use impact. (7/14/95 RT 12:14-17; AFC, p. 5.4-36.) In addition, all of the underground facilities - gas pipeline, electric transmission, water and steam pipelines - will conform with applicable plans. (7/14/95 RT 12:1-5.)

ly loaned and on the borrower's express agreement that they will not be
use permitted by any written consent given by the lender to the borrower

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SFSD AT/ES 10/93



LEGEND :

-  CHURCH
-  RECREATION /PARKS
-  MEDICAL /HEALTH FACILITIES
-  SCHOOL
-  COMMUNITY CENTER
-  .75 MILE RADIUS OUTLINE
-  RIDGE LINE

500 250 0 500 1000 FT
GRAPHIC SCALE

																					
																					
																					
																					
	08/07/94	RESPONSE TO LAND-1																			
NO	DATE	REVISIONS					BY	CHKD	DESIGN	ENGR	PROJ	APPR									
SCALE 1"=500'-0"		DESIGNED					DRAWN					CHECKED									

34x22 10" SIZE

LAND1.SP.DGN /Mon Nov 1 1994 07:09 01 /epathore

b. Staff

Staff also compiled a list of the land use agencies and their respective plans which potentially pertain to the proposed project. In LAND USE TABLES 1 AND 2 contained in the FSA, the Staff illustrated its conclusion that the proposed project was consistent with all applicable land use plans. (7/14/95 RT 40:24-41:3; FSA, Vol. I, pp. 500-502.) In addition to consistency with land use plans, Staff reviewed the compatibility of the proposed project with surrounding land uses, and found that construction of the facility on the site would not be detrimental to daily functions or development in the Bayview-Hunters Point community. (FSA, Vol. I, pp. 503, 506.)

In consultation with the City, Staff also identified pending development projects which might affect or be affected by the proposed project. The Staff determined that none of the pending projects would be impacted by the proposed powerplant. (7/14/95 RT 57:17-60:5; FSA, Vol. I, p. 506.) For example, the proposal for Third Street light rail, including pedestrian access and amenities, would not be adversely affected by the project due to the distance from the site to Third Street. (7/14/95 RT 42:3-15; FSA, Vol. I, p. 506; see, RT 29:15-19).

Finally, Staff determined that there would be no adverse cumulative affects from the proposed project since the development pattern around the site has been established as industrial and this nature will not be altered by the proposed powerplant. (7/14/95 RT 58:18-24; FSA, Vol. I, p. 506.)

With respect to the transmission line, water pipelines, steam pipeline and gas pipeline, Staff determined that by being underground these facilities would not conflict with any land uses. (FSA, Vol. I., pp. 499, 506.) Insofar as these underground facilities, cumulative impacts would occur, if at all, only if other underground, in-street construction was taking place at the same time.

c. Intervenors

Intervenors' witnesses contended that the proposed project would exacerbate a historical land use conflict in the Bayview Hunters Point community between residential and industrial uses, even though the site is zoned for the project. The proposed project would interfere with a desired transition from industrial uses to residential uses in the community. (LaBrie p. 7-10.) In this witness' view, uses not wanted elsewhere are placed in the Bayview-Hunters Point area. (7/14/95 RT 68:2-4.)

The witness also asserted that the project would conflict with the Energy Element of the Draft Bayshore Plan (LaBrie p. 9), which states as policy, "Explore the possibility of alternative supply options such as district cooling and cogeneration." (7/14/95 RT 102:25-103:1.) On cross-examination, Mr. LaBrie clarified that cogeneration would be an alternative supply option within the meaning of the Draft Bayshore Plan. (7/14/95 RT 104:20-21.)

5. Commission Discussion.

The uncontroverted evidence in the record is that the proposed project complies with all applicable land use plans and zoning designations. The Intervenors do not assert that the site is not zoned for the project. Since the proposed facility is a cogeneration plant, it conforms to the Energy Element of the Draft Bayshore Plan. The proposed project is compatible with existing and anticipated uses in the area surrounding the Port. Residential uses are sufficiently removed from the site that there is no significant conflict with the proposed powerplant. Moreover, the existing zoning permits no residential uses at or near the site. Since the surrounding uses are industrial, the project also will not create adverse cumulative impacts.

The underground facilities are consistent with applicable land use plans.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission reaches the following finding and conclusions:

1. The cogeneration plant at the Port Site will be consistent with all existing and proposed laws, ordinances, regulations, standards, plans and policies regulating land use, identified in APPENDIX: LORS of this Decision.
2. The cogeneration plant at the Port Site will not have a significant cumulative impact on containerized shipping operations of the Port of San Francisco.
3. The cogeneration plant at the Port Site will not have a significant adverse land use impact.
4. The proposed project will not adversely impact identified pending development projects.
5. The proposed project conforms to the Energy Element of the Draft Bayshore Plan.
6. The proposed project will not cause adverse cumulative impacts to the established development pattern in the vicinity of the Port site.

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Transmission Lines. The proposed natural gas, waste water, electrical, and steam transmission lines:

1. Will be consistent with all existing and proposed laws, ordinances, regulations, standards, plans and policies regulating land use identified in APPENDIX: LORS of this Decision;
2. Will be compatible with existing and approved land uses in the vicinity;
3. Will be compatible with proposed land use plans within the Bayview Hunters Point community; and
4. Will not have a significant adverse immediate or cumulative land use impact.

CONDITIONS OF CERTIFICATION

None.

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SOCIOECONOMICS

The technical area of socioeconomics addresses several related issues, including the potential effects of project-generated population changes on local schools, medical and protective services, public utilities, and other public services. In this section, the Commission has reviewed whether construction and operation of the project will result in any adverse impacts to community resources and/or affect the economic viability of the local area.²⁵

1. Setting.

The proposed site is located in the City and County of San Francisco. The community surrounding the site is known as Bayview Hunters Point.²⁶ This area is defined by Army Street to the north, the San Francisco/San Mateo county lines to the south, the James Lick Freeway (U.S. 101) to the west, and San Francisco Bay to the east. (FSA, Vol. I, p. 384.) San Francisco is divided into fifteen distinct planning areas, each with its own specific plan. Bayview Hunters Point is part of the South Bayshore planning area. (*Ibid.*)

The Final Draft South Bayshore Plan (1995) characterizes Bayview Hunters Point as an area that has historically been the location of San Francisco's heavy industrial and polluting uses. While many of the previous environmental and land use problems have abated due to the implementation of recent environmental, land use, and coastal regulations, Bayview Hunters Point is still home to several recycling centers, auto wrecking yards, an animal rendering plant, a wastewater treatment plant, two PG&E-owned powerplants, and hazardous waste sites at both the Port of San Francisco and the Hunters Point Naval Shipyard. (*Id.*, p. 384.)

²⁵ The CEQA Guidelines provide that "economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect." (Cal. Code Regs., tit. 14, § 15131(a).)

²⁶ For purposes of this analysis, Bayview Hunters Point is considered the study area and the nine-county Bay Area is considered the regional area. (FSA, Vol. I, p. 383.)

Bayview Hunters Point has experienced economic decline and population displacement due largely to market forces and land use conflicts. The closure of the Hunters Point Naval shipyard in the early 1970's along with demolition of old wartime public housing in the area contributed toward significant out-migration of the local population. However, since 1980, population and housing growth have increased due to new housing constructed through public redevelopment and private investment efforts. It is the goal of the Final Draft South Bayshore Plan to:

...abate the market forces contributing to the decline of the local population and conflicts between different land uses while encouraging those market forces that improve the economic status of local residents and provide them with a more supportive and attractive land use environment that increases their property values. (FSA, Vol. I, p. 384 citing the Final Draft South Bayshore Plan.)

Between 1980 and 1990, the population in Bayview Hunters Point increased almost 30 percent, from 20,600 to 26,700, while the overall population of San Francisco increased by only about 6 percent, from 679,000 to 724,000. (FSA, Vol. I, p. 384.) The population trends for Bayview Hunters Point, San Francisco, the Bay Area, and California are compared in SOCIOECONOMICS TABLE 1 below.

SOCIOECONOMICS TABLE 1
Bayview Hunters Point and Regional Population Trends

Population Trends					Average Annual Growth Rate	
	1980	1990	1993	1998	1980-90	1990-98
Bayview Hunters Point	20,611	26,694	28,155	30,465	2.6%	1.7%
San Francisco	678,973	723,959	752,049	755,420	0.6%	0.5%
Bay Area	5,179,784	6,021,097	6,333,952	6,712,993	1.5%	1.4%
California	23,668,145	29,760,021	31,551,554	33,965,265	2.3%	1.7%

(Source: FSA, Vol. I, p. 385, Socioeconomics Table 1 adapted from Real Estate Economics Final Report, 1994 .)

The population growth rate for Bayview Hunters Point can be attributed to the relatively lower area housing costs in the area.²⁷ (FSA, Vol. I, p. 386 citing Real Estate Economics Final Report 1994.)

During the 1980's, South Bayshore was the only district in San Francisco to experience an increase in the size of its African-American population, which grew from 15,769 in 1980 to 17,395 in 1990. (FSA, Vol. I, p. 385 citing Final Draft South Bayshore Plan 1995.) In 1990, Asian-Americans became the second largest group in Bayview Hunters Point accounting for 6,200 persons or 22 percent of the population. By 1990, whites accounted for 3,000 persons or 11 percent of the population, and other minorities accounted for 1,200 persons or 4 percent. (*Ibid.*)

The number of manufacturing jobs in San Francisco declined from about 50,000 jobs in 1980 to about 40,000 jobs in 1990. The loss of manufacturing jobs strongly affected the Bayview Hunters Point community because approximately 61 percent of the businesses in the area were industrial. (FSA, Vol. I, p. 388 citing Hunters Point Shipyard Land Use Plan 1994.) The decline in manufacturing jobs, the relocation of heavy industries, and the closure of the Hunters Point Naval Shipyard have had adverse effects on the economy and employment opportunities in Bayview Hunters Point.

The median household income estimates are provided for Bayview Hunters Point and the City of San Francisco in SOCIOECONOMICS TABLE 2 below.²⁸

²⁷ Based on the 1990 Census, median rent for Bayview Hunters Point was \$360 compared to \$653 for the City of San Francisco; the median housing value for Bayview Hunters Point was \$205,000, while in the City of San Francisco, it was over \$300,000. (AFC, Section 5.8.1.2) The population within two miles of the site has a higher ratio of home ownership, 46 percent compared to a citywide average of 34 percent. Moreover, several federally subsidized public housing projects and redevelopment-driven projects are located in the Bayview Hunters Point area. (FSA, Vol. I, pp. 386-387; AFC, p. 5.8-4.)

²⁸ The median household income for Bayview Hunters Point was approximately \$10,000 less than the citywide figure of \$36,838. Demographic information presented in the Final Draft South Bayshore Plan shows that from 1980 to 1990 the percentage of persons living in poverty increased from 25 percent to 30 percent, unemployment grew from 5.5 percent to 10 percent, and the percentage of female-headed households increased from 31 percent to 40 percent. (FSA, Vol. I, p. 385.)

SOCIOECONOMICS TABLE 2
Estimates of Household Income

Income Range	Bayview Hunters Point 1993 (%)	San Francisco 1993 (%)
Less than \$15,000	30.1	18.8
\$15,000 - \$25,000	15.9	13.8
\$25,000 - \$50,000	26.5	32.0
\$50,000 - \$100,000	23.0	25.7
\$100,000 - \$150,000	3.9	5.8
More than \$150,000	0.6	3.8
Median	\$27,414	\$36,838

(Source: FSA, Vol. I, p. 386, Socioeconomics Table 2 adapted from Real Estate Economics Final Report, 1994.)

In 1990, the overall unemployment rate for the Bayview Hunters Point community was 14.1 percent; the African-American unemployment rate was 17.7 percent. In comparison, citywide unemployment rates were 6.2 percent for all groups, and 13.2 percent for African-Americans. Unemployment rates do not include those who are underemployed and those who work at part-time or occasional jobs.

2. Potential Impacts.

Project construction and operation have the potential to cause impacts to community services such as police services, fire protection, community medical services, housing availability, schools, utilities, waste disposal, water demand, and wastewater disposal. In addition, the project may affect fiscal resources and the local economy, including property tax and sales tax distributions, stability of property values, and job availability for local community residents.

The uncontested evidence discussed below shows there will not be any adverse impacts to community services. However, while SFEC and Staff presented evidence that development

of the project will improve the fiscal health of the community with respect to employment opportunities, tax revenues, and support for community organizations, several of the Intervenor's witnesses disputed this view.

3. Summary of Evidence and Community Benefits.

Project Schedule

Construction of the project will take approximately 18 months.²⁹ Initially, SFEC expected to begin construction in late 1995 and to complete construction by August 1997. Construction is now expected to commence in early 1996. Accordingly, the schedule **will** likely be compressed so that construction should be completed by the summer of 1997 in accordance with the initial plan. (FSA, Vol. I, p. 395.)

A. Construction Work Force. SOCIOECONOMICS TABLE 3 below (adapted from FSA Socioeconomics Table 9) shows the manual craft and contractor staff requirements for the project. The peak labor force during construction should occur about 9 to 12 months after construction begins when approximately 195 craft, supervisory, support, and construction management personnel will be employed. The workforce will average about 122 employees during the construction period. (FSA, Vol. I, p. 395.) The total payroll cost including salaries, benefits, and worker's compensation during construction is estimated at \$16.5 million. (AFC, p. 5.8-24.)

Qualified crafts workers will be referred through local San Francisco unions and neighboring County Building and Construction Trades Unions. The San Francisco County Building and Construction Trades Council (Council) estimates that approximately 12,100

²⁹ SFEC initially estimated construction time as 20-22 months. However, the schedule may be **adjusted** to ensure project start-up in the summer of 1997.

SOCIOECONOMICS TABLE 3
Manual Craft and Contractor Staff Requirements

	1995			1996										1997									
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Boilermakers							11	16	23	23	23	23	20	20	12	5							
Carpenters	4	11	18	18	20	20	20	18	18	13	8	4	4	4	4	4	4	4	4	2	2		
Cement Masons			4	6	6	6	6	4	3	3	1												
Electricians	2	5	6	6	9	16	19	19	24	36	44	44	44	44	36	36	30	24	12	8	6		
Ironworkers		4	8	8	12	12	18	18	18	18	18	12	8	8	8	6	2						
Laborers	6	6	12	12	12	12	10	10	8	8	6	6	6	6	6	6	4	4	4	4	2		
Millwrights									4	4	8	12	16	16	16	12	8	4	2				
Operating Eng.	5	5	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	2	2	1	1		
Pipefitters		2	2	6	6	12	12	18	30	36	48	48	48	48	48	36	18	12	6	2	2		
Teamsters	2	2	2	2	2	2	4	4	4	4	4	4	4	4	2	2	2	2	2				
Manual Craft	19	35	54	60	71	84	104	111	136	149	164	157	154	154	136	111	72	52	32	17	13	0	
Contractor Staff	8	10	16	21	21	23	23	26	26	31	31	31	34	34	34	31	26	18	12	8	4		
Total Site Staffing	27	45	70	81	92	107	127	137	162	180	195	188	188	188	170	142	98	70	44	25	17	0	

(Source: FSA, Vol. I, p. 396, SOCIOECONOMICS TABLE 9, adapted from AFC, Table 5.8-10.)

journeymen and apprentices are members of locals in San Francisco, Contra Costa, and Solano Counties. Construction workers tend to be mobile and since the Bay Area is within commute range of San Francisco, there will not be a shortage of construction workers or an in-migration of workers from outside the Bay Area. (FSA, Vol. I, p. 395; AFC, p. 5.8-9.)

In response to community concerns, SFEC developed a plan to maximize employment opportunities for Bayview Hunters Point residents. Working with the Young Community Developers, Inc. (YCD) and Aboriginal Blackman Unlimited (ABU), two community based organizations in Bayview Hunters Point, SFEC established hiring goals to reserve 50 percent of construction jobs for community residents and to reserve 50 percent of apprentice positions for community residents. Preferential hiring will be given to union members with a Bayview Hunters Point zip code; unskilled workers from the community will be brought into apprenticeship programs. The YCD and ABU will be responsible for recruiting community residents for these positions. (FSA, Vol. I, pp. 397-398; 7/14/95 RT 136, 148, 154-155.)

On May 24, 1995, SFEC, the Council, and its affiliated unions executed a Project Stabilization Agreement which requires the project owner through its Engineering, Procurement, and Construction (EPC) Contractor to hire workers through union referrals.³⁰ (See, APPENDIX: Labor Agreement.)

The Council and its affiliated unions also signed an Agreement for Construction Employment Goals with the YCD and the ABU, which incorporates the hiring goals established by SFEC, including eligibility for indenture in the applicable local union for those residents who are not already union members.³¹ (7/14/95 RT 159; APPENDIX: Labor Agreement.)

³⁰ Article 10 of the Project Stabilization Agreement provides that contractors performing construction work on the project shall abide by the registration facilities and referral systems established or authorized by the local unions who signed the agreement. (7/14/95 RT 156-157.)

³¹ Community residents who are not fully qualified at the journey level but who have some previous construction experience, or those with no experience, will be eligible for apprenticeship subject to the standards of the Division of Apprenticeship Standards. (Agreement for Construction Employment Goals, § 2.0, APPENDIX: Labor Agreement.) [footnote cont. next page]

B. Operational Workforce. During operation, the project will employ about 20-25 workers. The annual payroll including benefits will be about \$1.9 million. SFEC proposed a goal of hiring 50 percent of its operational employees from the Bayview Hunters Point community.³² (FSA, Vol. I, p. 398; AFC, p. 5.8-24; SFEC Data Response (a) to CEC Data Request SOCIO-10, December 23, 1994.)

Community Benefits Program. In SFEC's Draft Lease with the Port of San Francisco, SFEC proposed a community benefits program to provide an average of approximately \$250,000 to the Bayview Hunters Point community each year for the period covering project operation years 1-17. (FSA, Vol. I, p. 397.) This program is discussed in the Environmental Justice section of this Decision.

Housing. Impacts to housing availability may occur if the construction workforce exceeds regional availability and causes an increase in the demand for housing. Both SFEC and Staff believe that the availability of the construction labor force and craft trades workers in the Bay Area will not require an in-migration of construction workers from other areas to work on this project. Moreover, any workers who are drawn to the area can be absorbed into the large Bay Area rental housing supply. (AFC, p. 5.8-24.) Therefore, no impact to housing availability should occur. (FSA, Vol. I, pp. 398-399.)

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[footnote cont.] The employment goals for the project are:

- Minority - 25.6%
- Women - 6.9%
- Community Residents - 50%
- Apprentice positions filled by Community residents - 50%

The goals set for minorities and women were derived from the Office of Federal Contract Compliance Guidelines, which are used by the San Francisco Redevelopment Agency. (7/14/95 RT 149-153.)

³² SFEC expects the workforce to be a mix of local residents and experienced staff from affiliated cogeneration facilities. (AFC, p. 5.8-24.)

Community Services

A. Police Services. The San Francisco Police Department has sufficient staffing and resources to respond to potential emergencies at the project site. Moreover, SFEC will employ security personnel on-site 24 hours a day, seven days a week. Therefore, the project will not cause adverse impacts to the Police Department and will not affect the Department's ability to serve the wider community. (FSA, Vol. I, p. 399.)

B. Fire Protection. The San Francisco Fire Department has sufficient staffing and resources to respond to project emergencies. Accordingly, the project will not result in adverse effects to the Fire Department and will have no impact on the Fire Department's ability to serve the wider community. (FSA, Vol. I, p. 399.) See the section on Industrial Safety and Fire Protection in this Decision regarding SFEC's proposed fire prevention program.

C. Community Medical Services. The Fire Department provides the first response for medical emergencies. In critical life-threatening situations, patients are transported from the Bayview Hunters Point area to San Francisco General Hospital. (AFC, p. 5.8-19.) San Francisco General Hospital is a Level 1 Trauma Center, which handles the highest priority health care emergencies, and serves the entire population within the City and County of San Francisco 24-hours a day, 7 days a week. (FSA, Vol. I, p. 399.) Therefore, the project will not cause adverse impacts to emergency medical services within the Bayview Hunters Point area or the wider San Francisco community.³³ SFEC's proposed health and safety program is discussed in the Industrial Safety and Fire Protection section of this Decision.

D. Schools. Impacts to local school capacities may occur if the families of project employees move to the area, causing schools at capacity to incur additional costs to

³³ SFEC employees and contractor employees will be covered by health insurance; if members of the public need emergency services *as a result of project construction or operation*, the project owner or its insurance contractor will be financially responsible for the costs of such services. (SFEC, Data Response (b) to SOCIO-6 CEC Data Request, December 23, 1994.)

accommodate new students. Since the evidence indicates that in-migration of workers is not expected due to the availability of the local workforce in the Bay Area, the project will not cause any discernable impact to local schools.³⁴ (AFC, pp. 5.8-13, 5.8-28.)

Under state law, developer impact fees may be assessed by school districts to assist in the needed rehabilitation of San Francisco schools. SFEC will pay the San Francisco Unified School District a one-time school impact fee of \$17,500. (AFC, p. 5.8-13.) These impact fees are deposited into a fund designated for deferred maintenance; there is no way to determine what portion of the funds eventually go to Bayview Hunters Point schools. (FSA, Vol. I, p. 400.)

E. Utilities. The project will require 1.9 million cubic feet per hour of natural gas from PG&E, which represents 1.3 percent of the amount of gas currently being piped into the San Francisco area. The evidence indicates that PG&E has excess pipeline capacity and can absorb the additional demand with no added infrastructure. Therefore, the proposed project will have no impact on PG&E's ability to serve other natural gas customers. (AFC, p. 5.8-20, FSA, Vol. I, p. 400.) Under normal operating conditions, the project will provide its own electricity of approximately 5.8 MW per day. PG&E can provide the required electricity to the project under its standby tariff. (FSA, Vol. I, p. 400.)

Fiscal Resources and Local Economy

A. Property Taxes. Property taxes derived from SFEC's use of Port lands are based on a possessory interest on the leasehold. The property tax will go to the City of San Francisco,³⁵

³⁴ School enrollment in the San Francisco Unified School District is currently stable, with a slight increase in elementary school students and a slight decrease in high school enrollments. The overall decline in the city's population has resulted in some under-utilization of existing schools. (AFC, p. 5.8-13.)

³⁵ Unlike other jurisdictions in California, the City and County of San Francisco is a single jurisdiction, responsible for all governmental functions with the exception of education. Thus, there are no differential tax rates or service districts within its boundaries, and the allocation to various funds is constant anywhere in the city. (AFC, p. 5.8-26.) Of the total property tax yield of approximately \$2 million annually anticipated from the project starting in 1997-98, slightly more than \$1 million will go to the General Fund and about \$600,000 will go to education. (*Ibid.*)

and rent based on the lease agreement will go to the Port.³⁶ The new redevelopment plan for the South Bayshore survey area will capture the incremental increase in property taxes generated by the project.³⁷ (FSA, Vol. I, p. 401.) The estimated property taxes are shown in SOCIOECONOMICS TABLE 4 (adapted from FSA, Socioeconomics Table 10) below.

SOCIOECONOMICS TABLE 4
Property Tax Generation of SFEC Facility

Taxable Value Basis	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01
land/ buildings	\$5,000,000	\$10,000,000	\$50,000,000	\$51,000,000	\$52,020,000	\$53,060,400
equipment/ personal property		\$25,000,000	\$125,000,000	\$125,000,000	\$125,000,000	\$125,000,000
Total	\$5,000,000	\$35,000,000	\$175,000,000	\$176,000,000	\$177,202,000	\$178,060,400
Total Property Tax @ 1.15% per \$100	\$57,500	\$402,500	\$2,012,500	\$2,024,000	\$2,035,700	\$2,047,700

(Source: FSA, Vol. I, p. 402, Socioeconomics Table 10 adapted from AFC, Table 5.8-11.)

B. Sales Taxes. Most of the sales tax revenue goes to the state. In San Mateo and San Francisco Counties, the cities receive approximately one percent of the sales tax plus another one percent to support transportation improvements. SFEC estimates approximately \$1 to 1.5 million will be spent locally on items subject to sales tax, such as materials and contract

³⁶ Revenues generated by the Port are used only for Port purposes. Under the 1968 *Burton Act*, the City of San Francisco created the Port Commission with complete authority to use, operate, manage and regulate the Port. Although the Port is structured like other City departments, it relies solely on revenues from property under its stewardship to fund maritime, public access and open space improvements, maintain property, and meet its administrative expenses. (FSA, Vol. I, p. 401, citing Draft Waterfront Land Use Plan.)

³⁷ The San Francisco Redevelopment Agency expects the redevelopment plan for the South Bayshore area to be adopted by the Spring of 1997 in order to capture the tax increment revenue from the project. (FSA, Vol. I, p. 401.)

services,³⁸ yielding \$80,000 to \$120,000 in annual sales tax revenue based on the 8.25 or 8.50 percent rates used in most Bay Area counties. Approximately \$15,000 in sales tax will be returned to the City's General Fund, and an equivalent amount will be dedicated to transportation projects. (FSA, Vol. I, p. 402.)

C. Non-governmental Financial Benefits. Based on SFEC's regional input-output model, the estimated economic impacts for every direct dollar spent are shown in SOCIOECONOMICS TABLE 5 (adapted from FSA, Socioeconomics Table 11) below.³⁹

Staff asserted that SFEC's economic benefits analysis represents non-discounted values which overstate the actual benefits of the project over time.⁴⁰ Nevertheless, Staff's calculations confirmed that the multiplier effect of project expenditures will result in economic benefits to the state and the local community. See SOCIOECONOMICS TABLE 6 (adapted from FSA Socioeconomics Table 14) below.

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³⁸ Staff proposed a Condition of Certification that would require SFEC to procure materials and supplies from local vendors, if feasible, to enhance the project's economic benefits to the community. The Commission believes this proposal is reasonable and it is incorporated in Condition SOCIO-1.

³⁹ In California, total economic output impact of all project spending ranges from \$2.1 to \$2.4 billion and the average is \$2.25 billion; total impact on household earnings of all project spending ranges from \$529 to \$594 million and the average is \$561 million; total number of new jobs created by all project spending ranges from 2,190 to 2,740 and the average is 2,465 jobs. (FSA, Vol. I, p. 404.)

For San Francisco/San Mateo Counties, the total economic output impact of all project spending ranges from \$1.1 to \$1.8 billion and the average is \$1.45 billion; total impact on household earnings of all project spending ranges from \$336 to \$481 million and the average is \$408 million; total number of new jobs created by all project spending ranges from 1,129 to 2,004 and the average is 1,566 jobs. (FSA, Vol. I, p. 405.)

⁴⁰ To more accurately predict the fiscal impacts of a single project, Staff applied a discount value of 9.75 percent to SFEC's operating costs over the 30-year project period to determine net present value in 1997 dollars. Staff also discounted SFEC's figures using the 30-year treasury yield of 7.45 percent as an alternative approach to derive net present value. Finally, Staff suggested that a social discount rate of 2 to 3 percent be used to determine net present value by discounting collective or public investments. (FSA, Vol. I, pp. 405-408.)

SOCIOECONOMICS TABLE 5
San Francisco/San Mateo Counties and California Expenditures
(SFEC's Regional Input-Output Model)

Cost Item	Amount 1997 \$	San Francisco/San Mateo Counties	California
Turnkey Engineering Procurement and Construction Contract	\$130,000,000	Low \$16,000,000 High \$32,500,000	Low \$42,000,000 High 49,000,000
Wastewater Reclamation Facility	\$5,400,000	Low \$540,000 High \$1,350,000	Low \$2,160,000 High \$2,160,000
Gas, Water, Electrical Interconnection	\$3,600,000	Low \$720,000 High \$1,800,000	Low \$3,600,000 High \$3,600,000
Startup and Connecting Costs/Development Costs and Construction	\$2,500,000	Low \$1,000,000 High \$1,250,000	Low \$2,000,000 High \$2,000,000
Management	\$9,250,000	Low \$2,100,000 High \$2,700,000	Low \$3,000,000 High \$3,000,000
Spare Parts and Working Capital	\$10,000,000	Low \$1,000,000 High \$3,000,000	Low \$4,000,000 High \$4,000,000
Financing Costs and Contingency	\$10,000,000	Low \$1,000,000 High \$5,000,000	Low \$7,500,000 High \$7,500,000
Emissions Offsets	\$3,500,000	Low \$350,000 High \$1,050,000	Low \$3,500,000 High \$3,500,000
Interest During Construction	\$12,000,000	Low \$0 High \$12,000,000	Low \$0 High \$12,000,000
Total Capital Cost	\$186,250,000	Low \$27,085,000 High \$65,650,000	Low \$73,385,000 High \$92,385,000

(Source: FSA, Vol. I, p. 404, Socioeconomics Table 11 adapted from SFEC Data Response to Data Request SOCIO-8, January 20, 1995.)

SOCIOECONOMICS TABLE 6

Total Project Economic Impacts for California - SFEC Non-Discounted Values and Net Present Values

Total Project Economic Impacts for California	SFEC Non-Discounted Values (2026)	Net Present Value 6.8% nominal social discount rate (1997)	Net Present Value 10.2 % (50% of project at 6.8% and 50% of project at 13.5%)	Net Present Value 13.5% nominal discount rate for QF investments (ER 92) (1997)
output	\$2.25 billion	\$711 million	\$532 million	\$351 million
household earnings	\$561 million	\$170 million	\$127 million	\$83 million
jobs	2,465	525	484	441

Source: FSA, Vol. I, p. 408, Socioeconomics Table 14.

D. Local Property Values. Both SFEC and Staff concluded that the project will not impact property values in the Port site vicinity. The surrounding land uses are industrial and the zoning is M-2 (Heavy Industrial). The nearest residential property with a view of the proposed project is at least one-half mile from the site and is visually impacted by the PG&E Hunters Point powerplants and the grain elevators located between the Port and Potrero Hill. (FSA, Vol. I, p. 411; AFC, p. 5.8-25.) There are no housing units in the area that have a pristine or rural view that will be replaced by an urban, industrial view as a result of this project; the housing units in Bayview Hunters Point currently have an urban, industrial view. (*Ibid.*) Moreover, future buildout of the Port as a priority use area is expected to increase the presence of industrial uses in the area.⁴¹ (Staff's Written Supplemental Socioeconomics Testimony, July 6, 1995.)

⁴¹ The Seaport Planning Advisory Committee and the Bay Conservation and Development Commission (BCDC) have indicated in the Seaport Plan that future buildout of the Port as a priority use area will be required to accommodate waterborne cargo demand. Priority use areas are important components of the regional economy and are reserved for maritime or non-maritime uses that will not impede development and operation of the Port. (Staff's Written Supplemental Testimony on Socioeconomics, July 6, 1995, p. 1.)

Staff asserted that although members of the community may feel the project will affect property values because of its industrial attributes, the evidence does not indicate that the project will change the nature of the community.⁴² (*Ibid.*) Staff reviewed the literature on market proximity analysis impact near industrial facilities to determine whether the project will affect the market value of residential properties in the community.⁴³ (*Ibid.*) Based on that review, Staff concluded that the actual loss of property value and potential effects can only be tested through data from home sales. (*Ibid.*)

Intervenors.

The Intervenors argue that the project will contribute to the industrial presence in the area and exacerbate the cumulative effect of industrial uses in the area that conflict with residential land uses. (Intervenors' Brief, pp. 67-68.) Community concerns are strongly influenced by quality of life issues, which are adversely affected by increased industrialization. The community already believes it is disproportionately burdened by sources of environmental pollution.⁴⁴ (See, Written Testimony of Carl Anthony, July 7, 1995.) Intervenors argued that Staff's analysis regarding impacts to property values was inadequate, especially because the

⁴² Several members of the community testified in favor of the project, indicating that the project's economic benefits to the community outweigh subjective fears about environmental impacts or diminished property values. (See, 7/14/95 RT 254 et seq., testimony of Keith Lennon, Fernando Espana, Kevin Williams, George Davis, Ph.D., Nathaniel Mason, and Ethel Garlington.)

⁴³ Staff reviewed the Kinnard-Dickey paper, A Primer on Proximity Impact Research: Residential Property Values Near High-Voltage Transmission Lines. According to this report, the preferred method for market proximity impact analysis is the Multiple Regression Analysis (MRA) in the Hedonic Pricing Format which reflects what buyers and sellers actually do as opposed to what potential buyers say they might do under specified hypothetical circumstances. Staff also reviewed the Analysis of Property Value Impacts of the Crockett Cogeneration Project [92-AFC-1] submitted by the Applicant in that case, which indicated that many factors are involved in purchasing a house. Location near industrial facilities is not always the deciding factor. (Staff's Supp. Socioeconomics Testimony.)

⁴⁴ Intervenors' expert witness, Carl Anthony, asserted that "[c]ommunities of color and inner cities bear a disproportionate burden from society's over-reliance on fossil fuels and suffer from direct environmental degradation. They must often bear the external social costs of the energy production and consumption cycle." (Written Testimony of Carl Anthony, July 7, 1995, p. 5.)

Bayview Hunters Point area has the highest rate of home ownership in San Francisco. (*Id.*, p. 12; Intervenor's Reply Brief, p. 16.)

Intervenor's also challenged the regional multiplier concept used by SFEC and Staff to estimate direct and indirect economic benefits of the project. According to Intervenor's, that approach does not account for the project's external social costs, such as air pollution, noise, and increased fear of adverse health effects. (Testimony of Carl Anthony, pp. 6-8.)

Further, Intervenor's argued that SFEC's agreement with the labor unions to hire community residents for the short-term construction period may be ineffective because there is no mechanism to ensure that community referrals will be allowed to join the unions. (Intervenor's Reply Brief, pp. 15-16.) Intervenor's witnesses, Willie Ratcliff, Vanessa Young, and Harry Sanders testified that in their experience the unions have traditionally excluded minority applicants and that SFEC's agreement with the unions does not provide long-term job opportunities that are needed in the community. (7/14/95 RT 182 et seq.)

4. Commission Discussion.

Uncontested evidence. The evidence unequivocally demonstrates that the project will not affect the capabilities of local schools, police and fire departments, medical emergency services, housing availability, or public utilities to serve the community because in-migration of workers and their families to the community will be minimal or non-existent. The community infrastructure has sufficient capacity to serve any potential demand resulting from project activities. Moreover, the project will provide direct economic benefits to the community resulting from job opportunities, school impact fees, property taxes, and sales tax revenues.

Contested Evidence.

Although their methodologies were different, both SFEC and Staff have shown the project will provide indirect economic benefits from project expenditures over the life of the project.

Intervenors disputed this conclusion, arguing that the "regional multiplier" analyses ignore the particular socioeconomic conditions of the Bayview Hunters Point community, particularly because a high percentage of income received by local residents is spent outside the area due to limited availability of retail and commercial businesses. While the Commission recognizes this argument may reflect the perception of the Intervenors, it is anecdotal in nature and not based upon probative evidence. Moreover, neither CEQA nor the Warren-Alquist Act requires a developer to provide indirect economic benefits to the surrounding community. If a new project stimulates economic growth, as in this case, it is viewed as a positive effect that is otherwise corollary to the required socioeconomic analysis under CEQA.

Regarding the Intervenors' concern that there is no guarantee the unions will allow residents to become members and work at the project, the Commission does not have jurisdiction to enforce the voluntary labor agreements between SFEC and the signatory unions. Condition SOCIO-1 incorporates SFEC's plan to recruit employees from the Bayview Hunters Point community; the YCD and ABU have responsibility to notify, recruit, and screen potential job applicants. The Commission believes SFEC's efforts to develop and implement its hiring program will provide additional economic benefits to the community.

Regarding potential impacts on property values, the Final Draft South Bayshore Plan provides that development should:

Stimulate business, employment, and housing growth within the existing general land use pattern by resolving conflicts between adjacent industrial and residential areas; and preserve and enhance existing residential neighborhoods.

Because zoning of surrounding land uses at the Port site is Heavy Industrial (M-2), the project will not contribute to land use conflicts. Moreover, if the project were not built, the Port would likely develop the site for other industrial uses. Chapter 4 of the Draft Waterfront Land Use Plan, which establishes development standards for cogeneration projects sited within the Cargo Way Mixed Use Opportunity Area, requires the developer to maximize economic benefit to the Port of San Francisco.

Based on the studies reviewed by SFEC and Staff, the Commission finds there is no accurate method to measure whether the value of residential properties in the Bayview Hunters Point community will be adversely affected by development of the project. (7/18/95 RT 33-37.) As discussed in the Environmental Justice section of this Decision, the weight of the evidence in this case demonstrates there will be no significant environmental impacts despite the subjective fears of the community. Because the project is situated within a well-established industrial area (and one proposed for future industrial use) it is not likely that the project will cause diminished property values.

FINDINGS AND CONCLUSIONS

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

1. The Final Draft South Bayshore Plan (1995) characterizes Bayview Hunters Point as an area that has historically been the location of San Francisco's heavy industrial and polluting uses.
2. Since the 1970's, the decline in manufacturing jobs, the relocation of heavy industries, and the closure of the Hunters Point Naval Shipyard have had adverse effects on the economy and employment opportunities in Bayview Hunters Point.
3. Demographic information in the Final Draft South Bayshore Plan shows that from 1980 to 1990, the percentage of persons living in poverty (under \$15,000) went up to 30 percent and the unemployment rate increased to 10 percent in the Bayshore Hunters Point Community.
4. The site is located in an area zoned M-2 for heavy industrial uses, is surrounded by heavy industrial uses, and is subject to the Draft Waterfront Land Use Plan for the Port of San Francisco.
5. Construction of the project is expected to last approximately 18 months from early 1996 to the summer of 1997.
6. The peak labor force during construction should occur about 9 to 12 months after construction begins and will require approximately 195 craft, supervisory, support and management personnel.
7. During operation, the project will employ about 20-25 employees.

8. To maximize employment opportunities for Bayview Hunters Point residents, SFEC established hiring goals to reserve 50 percent of construction (and operation) jobs for community residents and to reserve 50 percent of apprentice positions for community residents.
9. SFEC's hiring goals for construction workers are incorporated in the Agreement for Construction Employment Goals which was executed by the San Francisco Building and Construction Trades Council, its affiliated unions, and the Young Community Developers, Inc and the Aboriginal Blackman Unlimited.
10. Construction of the project will not cause impacts to housing availability because there is no shortage of construction labor in the Bay Area within commuting distance to the project.
11. Construction and operation of the project will not cause any impacts to police services, fire protection services, school enrollment, or public utilities.
12. The project will provide economic benefits through school impact fees, property taxes, sales taxes, job opportunities, and indirect financial benefits.
13. The project owner will establish a community benefits program that includes annual average payments of approximately \$250,000 to the Bayview Hunters Point community.
14. The project owner will procure materials and supplies from local vendors, to the extent possible.
15. There is no evidence that the project will adversely affect residential property values in the Bayview Hunters Point area but members of the community have subjective concerns that can only be tested through data from actual home sales.
16. Implementation of the Conditions of Certification set forth below ensures that the project will not adversely impact socioeconomics in the Bayview Hunters Point area.

CONDITIONS OF CERTIFICATION

- SOCIO-1** The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Bayview Hunters Point first, San Francisco County second, and San Mateo County third, unless;
- there is adequate justification to hire someone for a specific position or procure materials and/or supplies, from outside Bayview Hunters Point or

San Francisco County or San Mateo County for reasons such as price, quality, and suitability to a specific design criteria;

- 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.

Verification: At least 60 days prior to the start of construction, the project owner shall submit to the CPM and the Bayview Hunters Point Clean Environment Coalition (Coalition) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local area that will occur during the next two months. The CPM and the Coalition shall review and comment on the submittal as needed.

SOCIO-2 The project owner shall make a good faith effort to maximize the employment of Bayview Hunters Point residents first, San Francisco County residents second, and San Mateo Counties residents third, for the construction of the project to the extent consistent with state and federal law.

Protocol: For union positions, the project owner shall make a good faith effort in negotiating a collective bargaining agreement with the San Francisco County Building and Construction Trades Council to maximize the employment of Bayview Hunters Point residents first, San Francisco County residents second, and San Mateo County residents third, for the construction of the project. Whenever practical, on-the-job training opportunities will be provided for entry level positions.

For non-union positions, the program shall include Bayview Hunters Point outreach and recruitment to include advertising positions in local area newspapers and sending copies of job postings to relevant Bayview Hunters Point agencies and schools. The project owner shall provide interested Bayview Hunters Point residents preferences for open positions in such cases where two or more final candidates are equally qualified, i.e. both are able to perform the essential functions of the position, meet the physical and safety requirements, and have substantially similar experience, education, training, and job knowledge.

The project owner shall submit a detailed plan to implement the program to the CPM for review and approval. The implementation plan shall contain but not be limited to: (1) performance objectives for the program; (2) specific methods to

accomplish those objectives; and (3) procedures to revise the plan if performance objectives are not met.

Verification: At least 90 days prior to the start of construction, or a date mutually agreeable to the project owner and the CPM, the project owner shall submit the detailed plan to the CPM for review and approval. The project owner shall begin to implement the program within seven days after receiving approval of the plan from the CPM. The project owner shall present the results of implementation of the program in the Monthly Compliance Report for review and approval.

SOCIO-3 The project owner and its contractors and subcontractors shall institute a program to maximize the employment of residents of Bayview Hunters Point for the operation of the project, to the extent consistent with state and federal law.

Protocol: The program shall include outreach and training to provide interested Bayview Hunters Point residents with an opportunity to obtain the training necessary to qualify for entry level job classifications to be used for operation of the project. The project owner shall submit a detailed plan to implement the program to the CPM for review and approval. The implementation plan shall contain but not be limited to: (1) performance objectives for the program; (2) specific methods to accomplish those objectives; and (3) procedures to revise the plan if performance objectives are not met.

Verification: At least 90 days prior to the start of construction, or a date mutually agreeable to the project owner and the CPM, the project owner shall begin to implement the program within seven days after receiving approval of the plan from the CPM. The project owner shall present the results of implementation of the program in monthly reports for review and approval for the first year of operation and in the annual compliance report thereafter.

SOCIO-4 The project owner shall negotiate a lease with the Port of San Francisco that provides compliance with Chapter 4 of the Draft Waterfront Land Use Plan development standards for cogeneration plants that may be sited within the Cargo Way Mixed Use Opportunity Area .

Verification: Prior to the start of project construction, the Project Owner shall submit evidence to the CPM that the lease with the Port of San Francisco contains provisions for compliance with Chapter 4 of the Draft Waterfront Land Use Plan development standards for cogeneration plants that may be sited within the Cargo Way Mixed Use Opportunity Area.

VISUAL RESOURCES

Visual resources are the natural and cultural features of the environment that can be viewed. Visual quality refers to the value of visual resources. Scenic resources are visual resources that contribute positively to visual quality.

The Commission must determine whether the project will adversely affect the visual quality of the area and whether it will conform with applicable laws, ordinances, regulations, and standards. The determination of significant impacts is required by the California Environmental Quality Act (CEQA) Public Resources Code section 21000 et seq. and Title 20, California Code of Regulations, section 1701 et seq.⁴⁵ Determining whether the proposed project complies with applicable laws, ordinances, regulations and standards is required by Public Resources Code section 25525.

1. Setting.

The viewshed of the site is generally the area within approximately 1.5 miles of the proposed project site. (See, VISUAL RESOURCES: FIGURE 1). The area's hills preclude views of the site from beyond this distance except in the Bernal Heights area, up to approximately 2.0 miles from the site. Within this viewshed, five character types occur: heavy industrial, residential, commercial, open space, and the San Francisco Bay. The Bay is the most dominant visual element within the viewshed.

Industrial uses occupy the low-lying areas along the waterfront and east of Highway 101 between Potrero Hill and the hills that make up Bayview Hunters Point. This area has two distinct visual sub-areas. The first is a maritime-related industrial zone that includes large-scale structures such as cranes, grain elevators, large warehouses, and the existing Pacific Gas and Electric Hunters Point Powerplant. Interspersed between these uses are large expanses of

⁴⁵ The California Energy Commission's powerplant siting regulations.

undeveloped land and pavement. The Islais Creek Bridge, a local landmark bridge, is also located in this sub-area. Because of its industrial design, the bridge contributes to the industrial character of the sub-area. (FSA, Vol. I, p. 637.)

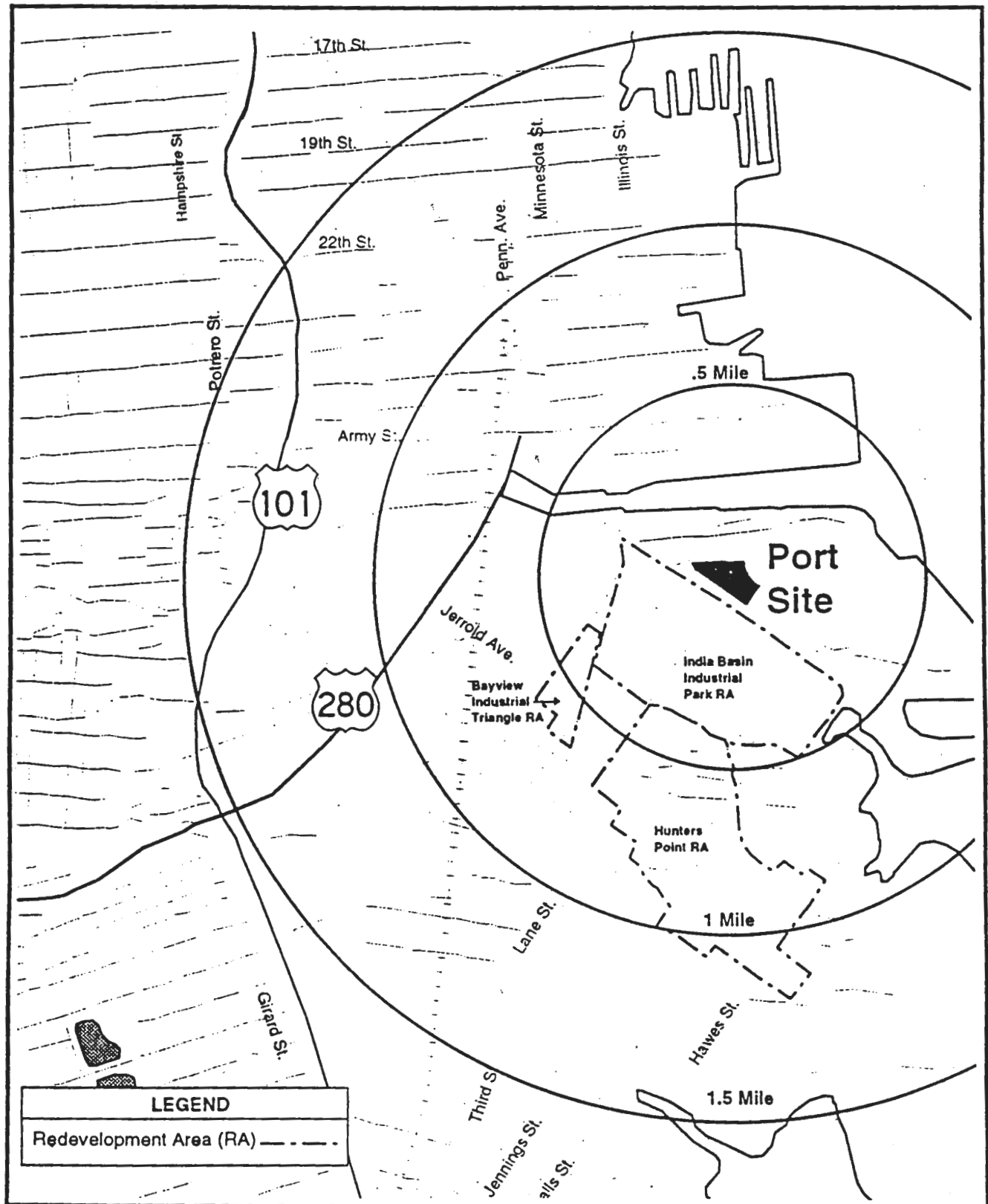
The other visual sub-area, located to the west, consists of smaller-scale warehouse structures. Residential/commercial areas are located in the hills to the north, west, and south of the site. The Potrero Hill neighborhood to the northwest is characterized by detached and attached houses and apartments. Bernal Heights, to the west, contains attached and detached houses interspersed with vegetation, and includes a distinctive open space on its peak. Bayview Hunters Point has two hills primarily containing attached housing units. (*Id.*)

The Bay and downtown San Francisco are the major visual focal points for the project vicinity. Those areas with views toward the project site focus primarily on the Bay. Bay views extend over varying amounts of the intervening industrial areas. The East Bay hills are also prominent from most Bay view areas. The Bay Bridge and Yerba Buena Island are prominent from some views. In addition, some of the Bay view areas have peripheral views to downtown San Francisco. Secondary views are to the surrounding residential areas occupying the hillsides. Views from the low-lying areas are generally limited to the surrounding hills. (FSA, Vol. I, p. 639.)

The project site is undeveloped, consisting of piles of soil and debris surrounded by grasses and shrubs. The most noticeable visual elements are the structures near the site. These consist of a grain elevator structure ranging from 90 to 187 feet tall just to the north; the Darling International Inc. rendering plant, immediately to the northeast; several container-loading cranes approximately 5,000 feet to the northeast and east that reach a height of approximately 200 feet when in stored position; two radio antennas located approximately 450 feet and 1350 feet to the northeast of the project and reaching a height of 350 feet; and the PG&E Hunters Point Powerplant approximately 5,000 feet to the south, with exhaust stacks ranging from 150 to 250 feet. Low-rise commercial uses, including a large postal facility, occupy the area just across Cargo Way from the site. (FSA, Vol. I, pp. 637, 639.)

VISUAL RESOURCES FIGURE 1

Port Site Vicinity



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1995.

(Source: FSA, Vol. I, p. 638.)

2. Potential Impacts.

In order to assess the potential visual impacts of the project, the Applicant and Staff agreed to use 7 Key Observation Points (KOPs). (See, Visual Resources: Figure 2.) KOPs were chosen to provide the basis for evaluation of project impacts by comparing the appearance before and after project construction, and to be representative of the most critical locations from which the project will be seen. (FSA, Vol. I, p. 610.) Applicant stated that KOPs were selected to represent the "worst case" views of the facility. (AFC, p. 5.11-2.)

The photographs of Key Observation Points 1 through 7 show the views from the various KOPs.⁴⁶ In each figure the top photograph shows the view as it now exists from a specific KOP without the project. The lower photograph contains the addition of a computer designed simulation of the powerplant as it would appear from that KOP. The project's visual impacts can be anticipated by comparing the two photos. (See, Photos of Key Observation Points 1 through 7.)

3. Summary of Evidence and Proposed Mitigation.

Applicant. In his oral testimony the Applicant's visual resources witness summarized the steps he took to assess existing visual conditions in the project area and to examine potential changes which would likely occur as a result of constructing the project. He first analyzed the visual character of the region, of the vicinity, and of the site itself. The second step was to determine who would see the project, whether the viewers were located in their residences or at the workplace, and what KOPs would best represent different viewers.

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⁴⁶ These seven photos were included in the FSA as Visual Resources Figures 20 through 26 and retain those designations as well.



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.

SOURCE: Adapted from SFTC 1994a, Fig. 5.11-13

Visual Resources Figure 20
Port Site - Key Observation Point 1
(Potrero Hill, Recreation Center)
 Existing Setting (top) & Facility Simulation (bottom)



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.

SOURCE: Adapted from SFEC 1994a, Fig. 5.11-14.

Visual Resources Figure 21
Port Site - Key Observation Point 2
(Bernal Heights, Brewster Street)
Existing Setting (top) & Facility Simulation (bottom)



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.

SOURCE: Adapted from SFEC 1994a, Fig. 5.11-15.

Visual Resources Figure 22
Port Site - Key Observation Point 3
(Bayview Hunters Point, Bayview Circle)
Existing Setting (top) & Facility Simulation (bottom)



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.

SOURCE: Adapted from SFEC 1994a, Fig. 5.11-16 & 5.11-22.

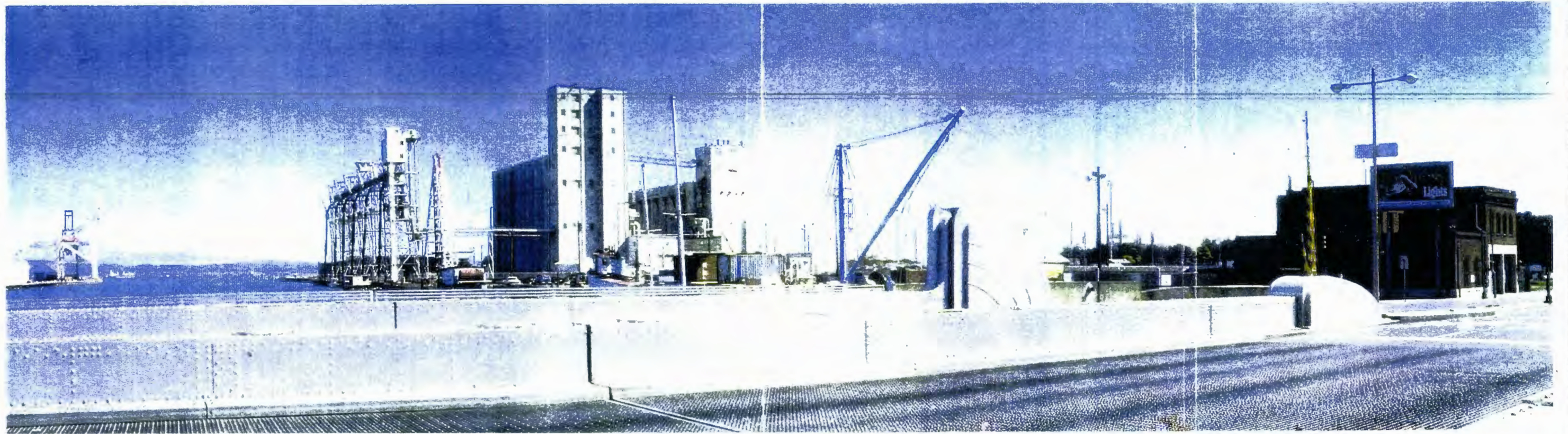
Visual Resources Figure 23
Port Site - Key Observation Point 4
(Bayview Hunters Point, Hawkins Lane)
Existing Setting (top) & Design Refinement Simulation (bottom)



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.

SOURCE: Adapted from SFEC 1994c, Figures 5.11-17 & 5.11-23.

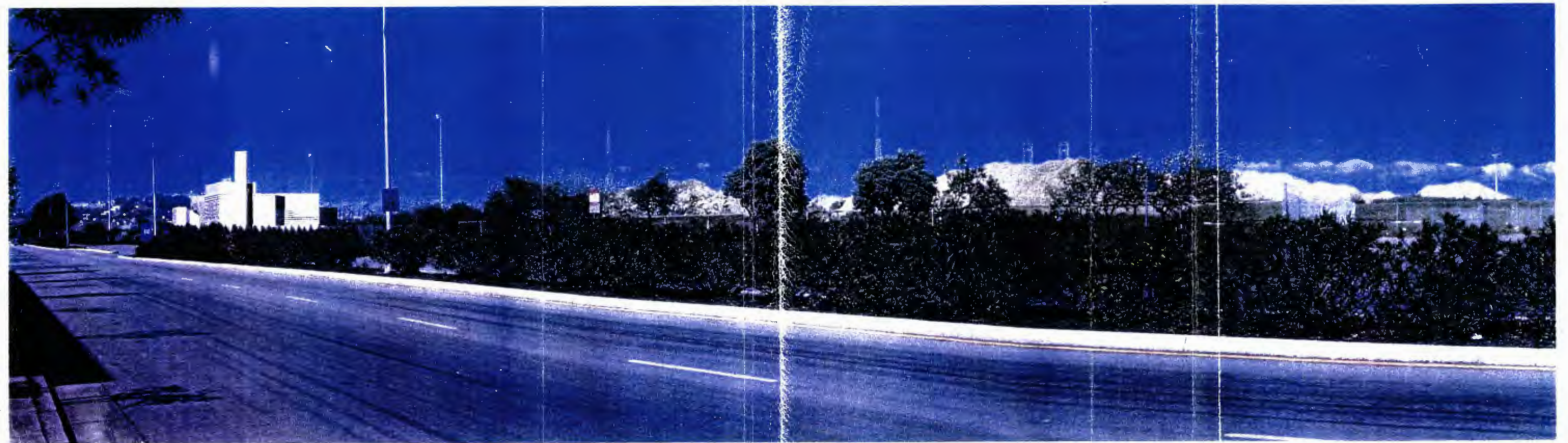
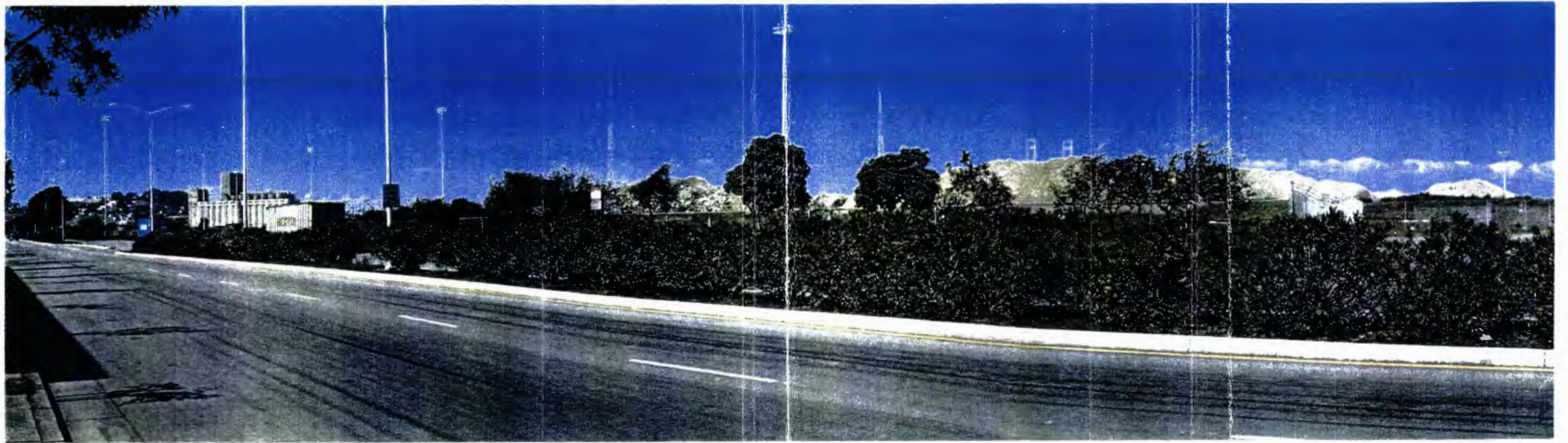
Visual Resources Figure 24
Port Site - Key Observation Point 5
(Bayview Hunters Point, Mendell Street)
Existing Setting (top) & Design Refinement Simulation (bottom)



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.

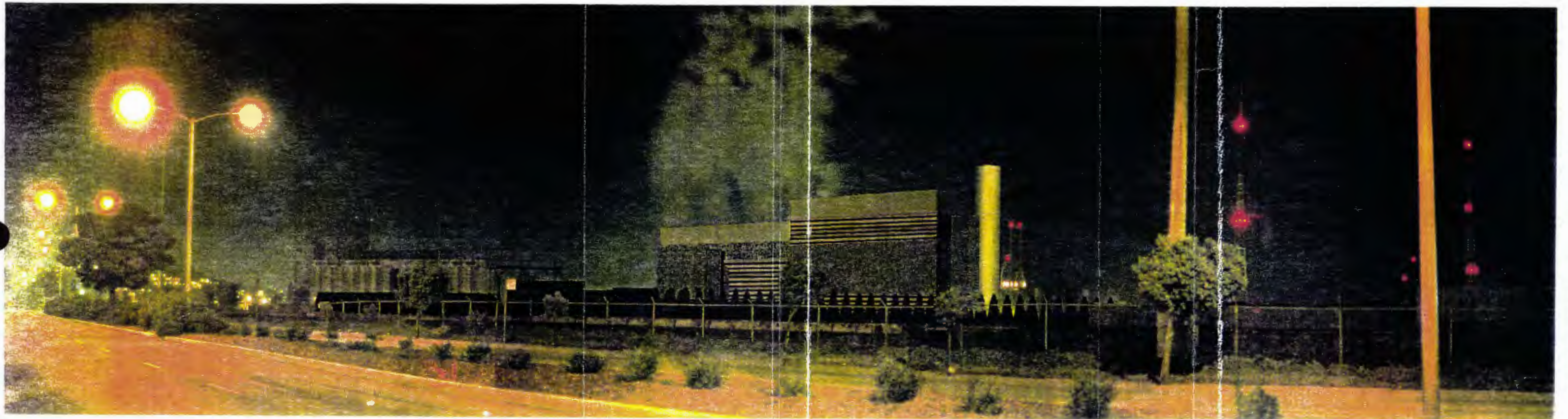
SOURCE: Adapted from SFEC 1994a, Fig. 5.11-18.

Visual Resources Figure 25
Port Site - Key Observation Point 6
(India Basin, Third Street Bridge)
Existing Setting (top) & Facility Simulation (bottom)



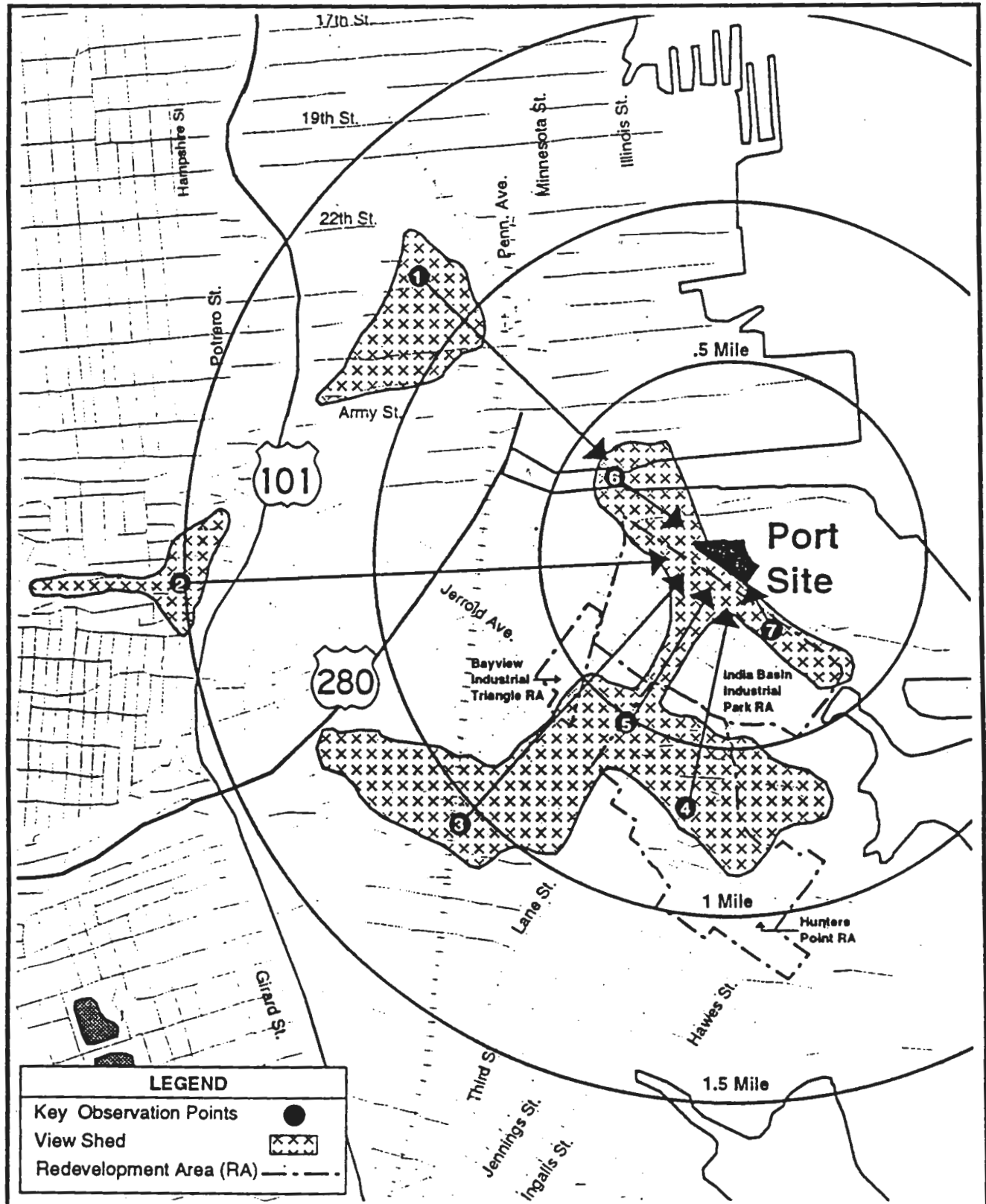
CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, April 1995.
 SOURCE: Adapted from SFEC 1994a, Figures 5.11-19 & 5.11-24.

Visual Resources Figure 26
Port Site - Key Observation Point 7 (India Basin, Cargo Way)
Existing Setting (top) & Design Refinement Simulation (bottom)



VISUAL RESOURCES FIGURE 2

Port Site - Key Observation Points



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1995.

(Source: FSA, Vol. I, p. 642.)

Next the witness used computer graphics to impose a simulation of how the project would appear upon photographs representing views from the various KOPs. Finally, he identified from the retouched photos any adverse visual impacts and what mitigation measures would be required to avoid such impacts. These mitigation measures, described in the AFC, follow two basic approaches:

1. Utilize architectural enhancements of the facility's components, including materials, color, and facade design alternatives. The architectural enhancements could include colors and textures that reduce the structure's scale, reduce contrasts between the facility and its surroundings, or highlight elements to create dynamic architectural features.
2. Include architectural and landscape elements to screen, blend, and/or soften views. This may include architectural elements, walls, or plantings to redirect or screen particular visual elements. These elements may also be used to create forms of intermediate scale to help integrate the facility into its surroundings and reduce contrasts and undesirable views. (AFC, pp. 5.11-48 and 5.11-57; pp. 5.11-103 to 104.)

The witness noted that based on the scale of development, the project site was identified as commercial/industrial. Within that category it could be further classified as falling within an industrial maritime zone. His final conclusion was that the project did not impose a significant change to the visual environment in the project's vicinity. From long range views the project tends to blend into the existing industrial development. He stated that various mitigation measures would eliminate any potential adverse visual effect upon closer views of the project from residences. (7/11/95 RT 172-175.)

Staff. The Staff witness described his method for analyzing visual impacts of the project. He testified that he had reviewed the Applicant's proposal, identified relevant laws, standards, policies, and consulted with local agency staff. After numerous visits to the project area, he had assisted in selecting the representative Key Observation Points used. His evaluation of the project's visual impacts as seen from the various KOPs is summarized in Table 1.

VISUAL RESOURCES TABLE 1

Visual Impact Susceptibility¹ - Key Observation Points

	VISUAL QUALITY	VIEWER SENSITIVITY	VISIBILITY	VIEWER EXPOSURE	VISUAL IMPACT SUSCEPTIBILITY
Key Observation Point 1	Moderate- to-High ²	High	Low-to-Moderate	Moderate-to-High	Moderate
Key Observation Point 2	Moderate	High	High	Moderate	High
Key Observation Point 3	Moderate-to-High	High	High	Moderate-to-High	High
Key Observation Point 4	Moderate-to-High	High	High	High	High
Key Observation Point 5	Moderate-to-High	High	High	High	High
Key Observation Point 6	Low	Low	Low	Moderate-to-High	Low
Key Observation Point 7	Low-to-Moderate	Low-to-Moderate	High	Moderate-to-High	Moderate
Highway 101 Northbound	Low-to-Moderate	Low	Low-to-Moderate	Moderate	Moderate
Highway 101 Southbound	Low-to-Moderate	Low	Low-to-Moderate	Moderate	Moderate
I-280 Northbound	Moderate	Low	Moderate	Moderate	Moderate
I-280 Southbound	Moderate	Low	Low	Moderate	Moderate

(Source: FSA, Vol. I, p. 642.)

¹ Values are for both daytime and nighttime conditions.

² Values that include two hyphenated scores (such as Moderate-to-High) indicate a value between the two scores, not a range of values.

The Staff specialist attended public workshops at which members of the affected community voiced their concerns about the project. He also evaluated the Applicant's proposed mitigation measures and recommended additional measures to help further reduce the project's visual impact on the area. Additional measures would include: the shielding of all outdoor lighting, the use of a wet-dry cooling tower system to minimize visible steam plumes and measures to reduce stack plumes as well.

The mitigation measures proposed by both the Staff and Applicant are incorporated in the Conditions of Certification which are included at the end the Visual Resources section. In the opinion of the Staff witness, the combination of measures, if properly implemented, will reduce the project's visual impacts to less than significant levels. He stated that the project as mitigated would comply with the applicable laws, ordinances, regulations and standards. Regarding cumulative impacts, he noted that the project would not substantially intensify the industrial appearance of the area and thus will not contribute to a cumulative impact. (7/11/95 RT 192-195.)

Intervenors. The Innes Avenue Coalition called Philip Ragozzino as a citizen witness in opposition to the project. Mr. Rogozzino lives on Bowman Court, three-quarters of a mile south of the project site and can see the location from his home. He gave three reasons for his opposition to the project on the grounds of its visual impacts on the community. First, he testified that the sight of the proposed powerplant will impede further economic development in the community. Second, he opined that construction of the proposed powerplant will cause visual impacts which will reduce the value of his property. Third, he stated that he feels the proposed project will be an "eyesore". In this regard he noted that the proposed project will be located in the middle of a prized view from his bedroom window. The witness testified that the Hunters Point area holds great potential to be revitalized and that the visual impacts of the Applicant's project will reduce that potential. (7/11/95 RT 227-230.)

The Innes Avenue Coalition also sponsored as a citizen witness, Ms. Anita Hanks, a resident of the Hunters View Projects located on Point West Road. Her residence is located south of the proposed powerplant site, at a slightly greater distance than Mr. Roggozino's home. Ms. Hanks is involved in landscaping to help beautify the neighborhood. She stated that construction of the powerplant would degrade such efforts to beautify the community. She noted that she currently can see

the PG&E powerplant from her living room window and would see the proposed project from her dining room. (*Id.*, 234-236.)

4. Commission Discussion.

The Commission's experience with powerplant siting cases has shown that the visual impacts of a major powerplant project must be addressed on several levels. The first is to determine whether the project complies with applicable laws, ordinances regulations and standards which deal with visual impacts. Next the Commission must evaluate whether the project's visual intrusion on the environment is significant and, if so, whether the impact has been reduced or mitigated to the greatest extent feasible, thereby helping the project to blend into its surrounding. In response to the Intervenor's concerns, the Commission in this case also evaluated the project's impacts on the community because of its perceived symbolic significance - its capacity to stigmatize the vicinity of the powerplant.

Applicant demonstrated in its testimony that the proposed project will comply with legal requirements applicable to the powerplant's visual impacts. The Staff evidence showed that the project will comply with the vast majority of legal requirements but will be partially inconsistent with a policy in the San Francisco Master Plan (Master Plan) concerning visual access to the water. (FSA, Vol. I, p. 730.) However, in its testimony, Staff noted that the inconsistency is not substantial since the project is an industrial one in an area designated for industrial development. Staff concludes that, "On the whole, the project complies with the Master Plan". (Supplemental Staff Testimony on Visual Resources and Socioeconomics, p. 2, 6/30/95.) No other party challenged this conclusion. Thus, the conformity with legally enforceable visual standards is not at issue.

The methodologies used both by the Applicant and by the Staff provide a logical means to assess the project's visual impacts on the neighborhood. KOPs were selected to represent "worst case" examples of various view areas. This was done by the Applicant with input from local residents and the Staff. Nevertheless, Intervenor Innes Avenue Coalition argues that no KOPs were chosen at the Hunters View Project, where witness Anita Hanks resides, or at the Bowman Court area where witness Philip Ragozzino lives. While it would have been instructive, in an ideal world, to have each witness's

testimony accompanied by a KOP "before and after" photo showing the project's visual impacts, the Commission does not have that information in the record. We do, however, have before us a collection of photos which represent seven different KOPs showing the project from various angles and distances. This evidence, as well as the testimony of the parties and the personal observations of the Siting Committee members reveal a project site in the midst of an industrial area. The existing facilities which surround it have strong industrial visual components. No evidence of record contradicts this impression or calls into doubt the methodologies applied by Applicant and by the Staff.

While the evidence shows that the project will certainly be visible to many people, the mitigation measures proposed by the Applicant will minimize the plant's interference with existing views. Architectural and landscaping measures will soften the project's visual impact on the neighborhood. Sophisticated modeling of the plume from the project's heat recovery steam generator predicted that a visible plume would arise from the stack less than 1% of the year, far less than that from a conventional cooling tower. In addition, the mitigation measures proposed by the Staff and contained in the Conditions of Certification will further reduce the plant's visual intrusion on the local environment. On balance, the Commission is persuaded that implementing the combination of mitigation measures proposed by the Applicant and by the Staff will reduce visual impacts of the project to less than significant levels.

The concerns of the Intervenor's witnesses are quite understandable. Those who work hard to improve their neighborhood are quite naturally concerned that a large project may be contrary to their efforts to beautify the neighborhood. However, the evidence shows that the proposed facility will include design features which will either enhance its appearance or reduce its visual impact. The same cannot be said for other industrial facilities in the area. Furthermore, no evidence was submitted to support the fear that the stigma of a powerplant will per se reduce property values in the area. On the contrary, a number of the community enhancements discussed in the sections of this Decision on Socioeconomics and on Environmental Justice have the potential to assist the neighborhood in its ongoing revitalization efforts.

FINDINGS AND CONCLUSIONS

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

1. The project would be constructed in a location presently devoted to heavy industrial use.
2. Views of San Francisco Bay from the various Key Observation Points in evidence are characterized by numerous manmade and industrial elements.
3. The mitigation measures will offset, avoid and mitigate to less than significant levels, any negative visual effects of the project.
4. Even with the imposition of the mitigation measures contained in the Conditions of Certification, there will be a degree of intrusion into the views of some residents near the project.
5. The project, as mitigated, will not represent a significant adverse visual impact on the surrounding community.
6. With the implementation of the Conditions of Certification, the project will comply with all applicable laws, ordinances, regulations and standards identified in the Visual Resources section of APPENDIX: LORS of this Decision.

CONDITIONS OF CERTIFICATION

Requirement:

VIS-1 No later than 60 days after synchronization with the PG&E Transmission System, the project owner shall treat the project structures, stacks, buildings and tanks visible to the public to minimize contrast and harmonize with the surrounding environment.

Protocol: The project owner shall submit a treatment plan for the project to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The color plan shall include:

- specification, and 11" x 14" 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 when 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: No later than 60 days after the start of construction of the project, the project owner shall submit its proposed 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 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.

No later than 60 days after synchronization with the PG&E Transmission System, 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 its 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 when the fencing has been installed and is ready for inspection.

Verification: Not later than 180 days after project certification and 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. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the fencing submittal.

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 No later than 270 days after synchronization with the PG&E Transmission System, the project owner shall install screening to reduce the visual impact of the project.

Protocol: The project owner shall submit to the CPM for review and approval a specific plan describing its screening proposal. The plan shall include but not be limited to:

- a detailed screening plan, at a reasonable scale, which includes a list of materials to be used, any proposed plant species and sizes, and a discussion of the suitability of any screening materials and indigenous plants for the site conditions and mitigation objectives.

- maintenance procedures, including any needed irrigation;
- a procedure for replacing unsuccessful plantings.

No screening material shall be installed and no plants shall be planted before the plan is approved by the CPM. The project owner shall notify the CPM when the screening material has been installed and when any plants have been planted and are ready for inspection.

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.

Verification: No later than 150 days after synchronization with the PG&E Transmission System, the project owner shall submit the proposed screening 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 screening 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 prepare and submit a revised plan to the CPM.

The project owner shall notify the CPM within seven days after completing the screening that the screening is ready for inspection.

VIS-4 The project owner shall design and construct the heat recovery steam generator (HRSG) stack and auxiliary steam boiler stack so as not to exceed a height of 111 feet above finished grade.

Verification: Not later than 30 days prior to ordering fabrication or construction of the stacks (whichever comes first), the project owner shall submit to the CPM documentation that the stacks have been designed in compliance with this requirement. Not later than 30 days after completion of construction of the stacks, the project owner shall submit to the CPM documentation that the stacks have been constructed in compliance with this requirement. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the submittal.

VIS-5 The project owner shall design and construct the testing platform for the heat recovery steam generator (HRSG) stack and auxiliary steam boiler stack so as not to exceed the maximum height of the HRSG enclosure, to the extent allowed by applicable air quality regulations.

Verification: Not later than 30 days prior to ordering fabrication or construction of the testing platform (whichever comes first), the project owner shall submit to the CPM documentation that the testing platform has been designed in compliance with this requirement. Not later than 30 days after completion

of construction of the testing platform, the project owner shall submit to the CPM documentation that the testing platform has been constructed in compliance with this requirement. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the submittal.

VIS-6 When a visible cooling tower plume occurs between 6 A.M. and midnight, the project owner shall immediately initiate action at the first sign of a visible plume to minimize the size of the plume. Maximum abatement shall be achieved within 30 minutes after initiating action.

Protocol: The method to be used to eliminate any visible cooling tower plume shall be to design, install, and operate a wet/dry plume abated cooling tower as part of the project.

The goal of the mitigation is to reduce the occurrence of visible cooling tower plumes to a maximum of ten percent of the total hours per year, and to minimize the duration and size of plumes that persist even with abatement action.

Verification: In the annual compliance report the project owner shall:

1. Specify any occurrences of visible cooling tower plumes, including time of onset and estimated maximum dimensions;
2. Describe any methods used to minimize each occurrence of a visible cooling tower plume, including the time elapsed between the onset of the visible plume and the implementation of the abatement method(s); and
3. Describe the effectiveness of the abatement methods used for each occurrence, including the time elapsed between application of the method(s) and elimination of the visible plume.

VIS-7 When a visible stack plume occurs between 6 A.M. and midnight, the project owner shall immediately initiate action at the first sign of a visible plume to minimize the plume. Minimization shall be achieved within 30 minutes after initiating action.

Protocol: The project owner shall minimize any visible stack plume by reducing duty on the low-temperature economizer section of the HRSG by partially bypassing the economizer on the water side.

Verification: In the annual compliance report the project owner shall:

1. Specify any occurrences of visible stack plumes, including time of onset and estimated maximum dimensions;

2. Describe any methods used to minimize each occurrence of a stack plume, including the time elapsed between the onset of the visible plume and the implementation of the abatement method(s); and
3. Describe the effectiveness of the abatement methods used for each occurrence, including the time elapsed between application of the method(s) and elimination of the visible plume.

VIS-8 No later than 90 days after synchronization with the PG&E Transmission System, 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 and unwanted glare visible from residential areas;
- 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; and
- A lighting complaint resolution form (following the general format of that in Attachment 1) will be used by plant operators, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 60 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.

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ATTACHMENT 1

LIGHTING COMPLAINT RESOLUTION FORM

SFEC COGENERATION PROJECT San Francisco, California	
Complainant's name and address:	
Phone number: _____	
Date complaint received: _____ Time complaint received: _____	
Nature of lighting complaint:	
Definition of problem after investigation by plant personnel:	
Date complainant first contacted: _____	
Description of corrective measures taken:	
Complainant's signature: _____	Date: _____
Approximate installed cost of corrective measures: \$ _____	
Date installation completed: _____	
Date first letter sent to complainant: _____ (copy attached)	
Date final letter sent to complainant: _____ (copy attached)	
This information is certified to be correct:	
Plant Manager's Signature: _____	

(Attach additional pages and supporting documentation, as required.)

TRAFFIC AND TRANSPORTATION

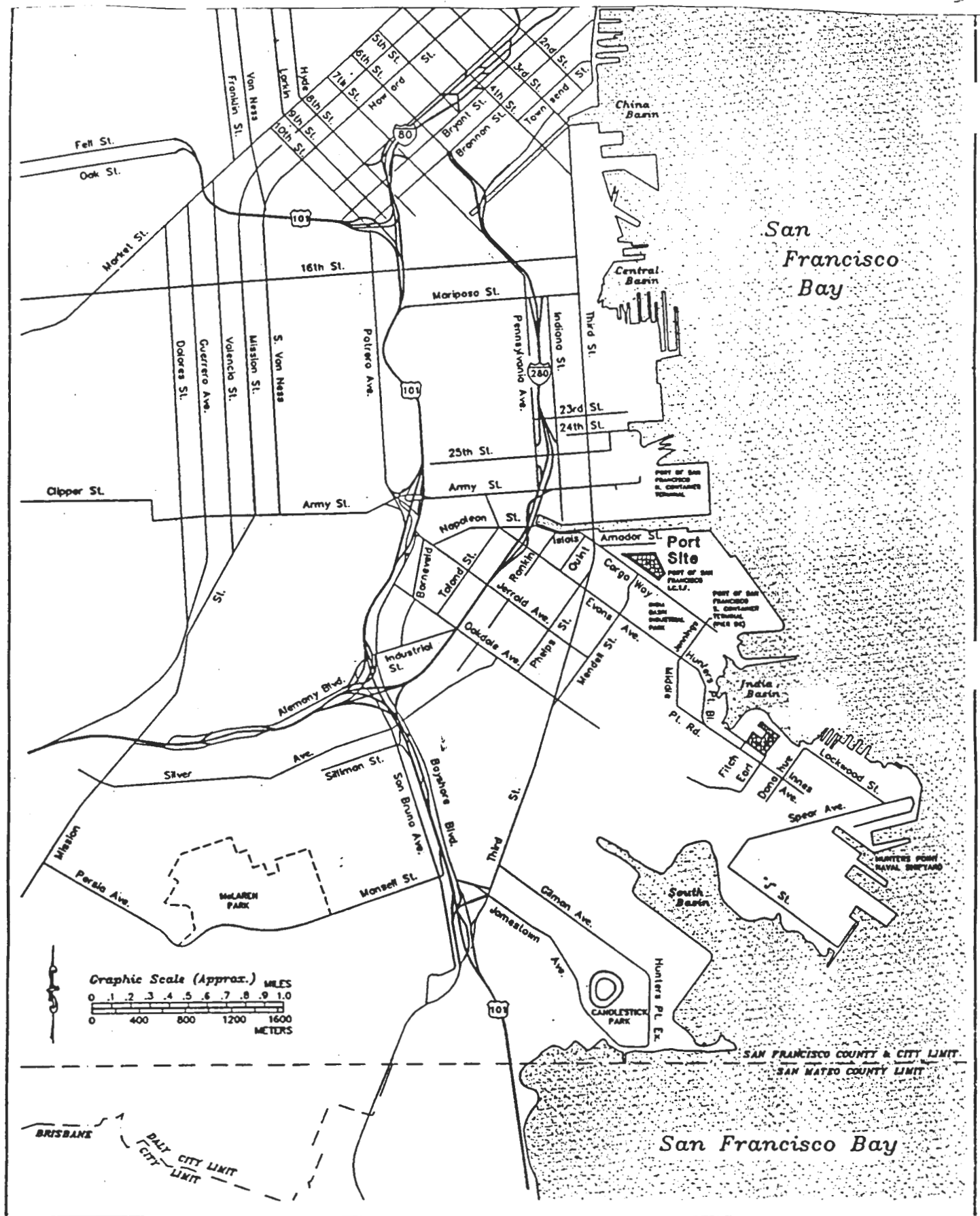
This section summarizes the separate analyses by both SFEC and the Commission staff of the potential traffic and transportation impacts associated with construction and operation of the project. These analyses included the identification of: 1) the roads and routings which are proposed to be used; 2) potential traffic-related problems associated with those routes; 3) the anticipated number of trips to deliver oversize/overweight equipment; 4) the anticipated encroachment upon public rights-of-way during the construction of the proposed project and associated linear facilities; 5) the frequency of trips and probable routes associated with the delivery of hazardous materials; and 6) the availability of alternative transportation methods such as rail.

The Commission used this information to determine the potential for the project to have significant traffic and transportation impacts, as well as to assess the availability of mitigation measures which could reduce or eliminate the significance of those impacts. Conditions of Certification are included to implement the appropriate mitigation measures and to ensure that the project complies with the applicable laws, ordinances, regulations and standards.

1. Setting.

The project site is located in the Bayview Hunters Point area in the southeast corner of San Francisco. Primary north-south access is provided by US 101, I-280 and Third Street. Principal east-west access is provided by I-280 west of US 101, Army Street, Evans and Innes Avenues, and Oakdale Street. (See, TRAFFIC AND TRANSPORTATION FIGURE 1). A network of local streets provides access from these major routes. The characteristics of streets in the area of the project are set forth in TRAFFIC AND TRANSPORTATION TABLE 1.

Site Location



(Source: AFC, Figure 5.10-1.)

TRAFFIC AND TRANSPORTATION TABLE 1
Street Characteristics

STREET	WIDTH (feet)	LANES	SPEED LIMIT	PARKING	COMMENTS
Army Street					
- West of Third Street	60	4	30 mph	2 sides	Freeway access route
- East of Third Street	60	4	30 mph	2 sides	
Evans Avenue					
- East of Third Street	88	4	35 mph	2 sides	Speed limit varies 35 to 25 mph.
- West of Third Street	60	4	35 mph	2 sides	
Innes Avenue	60	4	25 mph	2 sides	Limited development access to adjacent uses.
Hunters Point Boulevard	60	4	25 mph	Restricted	Transition between Evans and Innes Avenues
Cargo Way	78	4	35 mph	2 sides	Median-restricted right of way, direct access to Pier 96.
Phelps Street	33	2	25 mph	2 sides	Narrow
Jennings Street	48	2	25 mph	2 sides	Connector between Evans Ave. and Cargo Way
Mendell Street	68	2	25 mph	2 sides	Wide roadway, serves adjacent industrial park
Oakdale Avenue	48	4	30 mph	2 sides	
Bayshore Boulevard					
- Oakdale to Cortland	100	6	25 mph	2 sides	Two-way left-turn lane
- South of Cortland	100	6	25 mph	2 sides	
Quint Street	47	2	25 mph	2 sides	No curb, railroad tracks down middle, utility pole

(Source: FSA, Vol. I, p. 548; Modified from SFEC 1994a, Table 5.10-1 and SFEC 1994b, Data Response TRANS-1.)

2. Potential Impacts.

The greatest impacts are expected to include direct disturbance of traffic flows, street operation and parking due to traffic re-routing; blocked lanes; trucks hauling equipment, spoils and materials; and construction workers commuting to and from the job site. (AFC 5.10-21 to 5.10-26.)

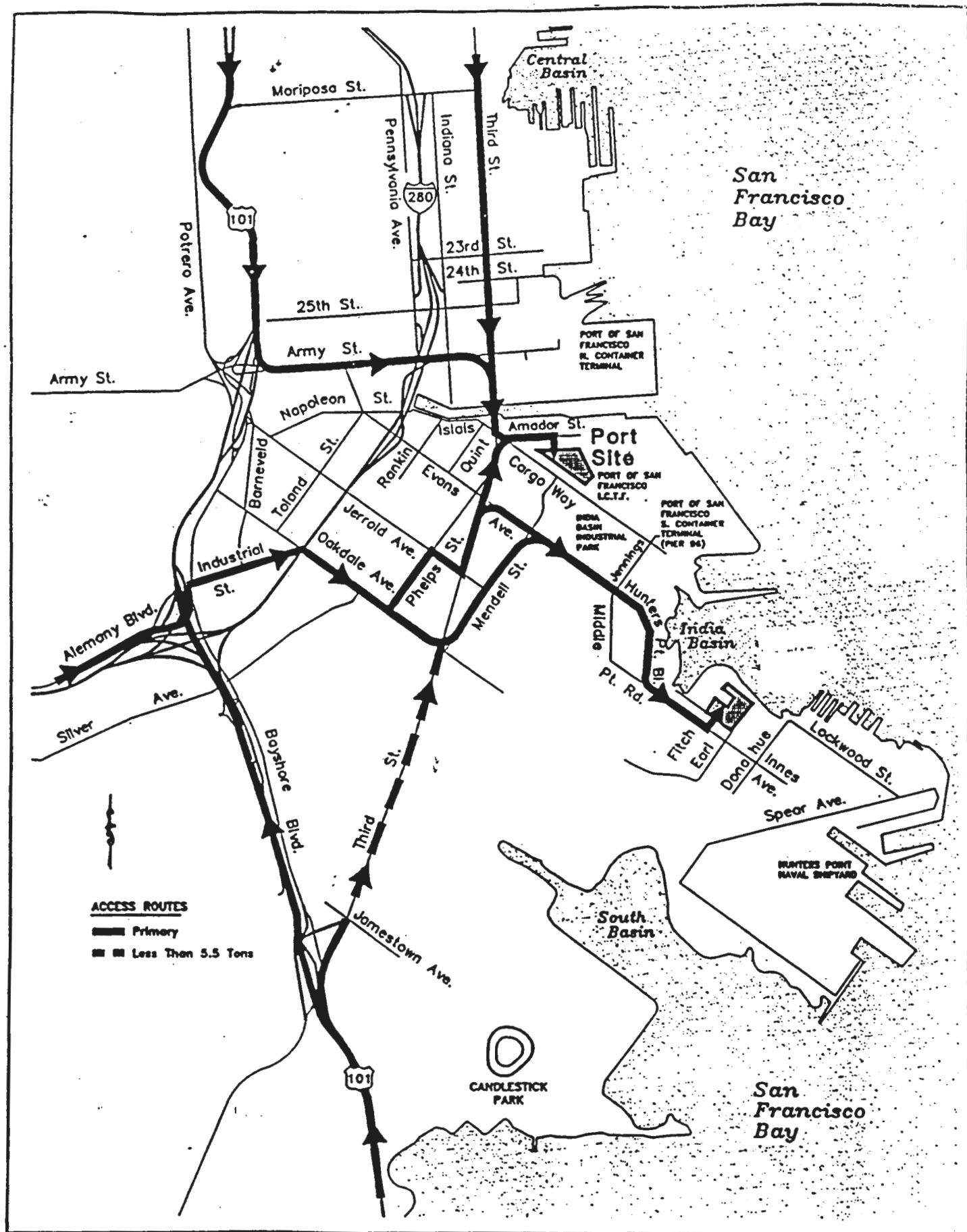
During construction, an average daily workforce of 112 workers and a peak daily workforce of approximately 195 workers is expected. SFEC and the Commission staff have concluded that while traffic will be added to all impacted intersections, the amount of traffic generated by construction activities will not add significantly to existing traffic conditions. See TRAFFIC AND TRANSPORTATION TABLES 2 AND 3; (AFC, p. 5.10-21; FSA, Vol. I, p. 576.) Operation of the facility will involve a total of 20 to 25 employees with between 10 and 13 of these working a standard day from 7 a.m. to 4 p.m. This will not severely impact peak-hour commute traffic.

Access to the powerplant site would be by Highway 101 and major local surface roads with the final approach branching off toward the site. Traffic from the south using Third Street would continue to the Third Street/Cargo Way/Amador Street intersection, turning east along Amador Street to the site. Traffic from the north, and truck traffic which is heavier and restricted on Third Street, would continue south on Third Street, to the Third Street/Cargo Way/Amador Street intersection and east along Amador Street to the site. Traffic from the west would use Oakdale Avenue either to Phelps Street to Jerrold Avenue to Third Street to the Third/Cargo/Amador intersection, or continue on Oakdale to Third turning north on Third to the Third/Cargo/Amador intersection and into the site. Ingress and egress along these routes is shown in TRAFFIC AND TRANSPORTATION FIGURES 2 AND 3 below. (FSA, Vol. I, p. 551.)

The underground electric transmission line from the powerplant site has three alternative routes. One would follow Cargo Way to the southeast to Jennings Street, then turn to the southwest to Evans Avenue/Hunters Point Boulevard, then turn to the southeast and into the substation at the PG&E powerplant. A second route would run to the southeast on Port of San Francisco property to Jennings Street and then follow the same route as above. The third route would run from the site a short distance

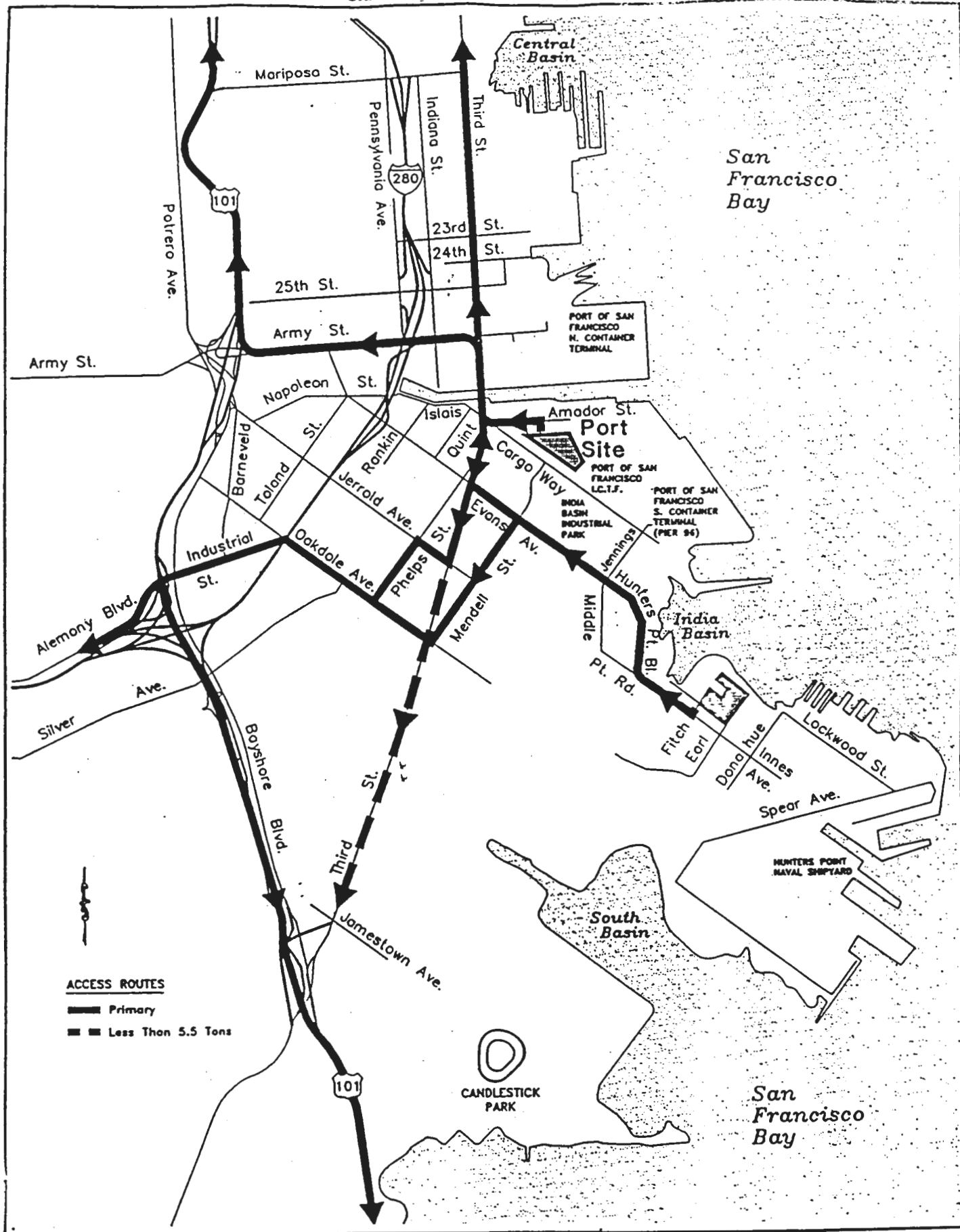
to the northwest on Cargo Way, turn to the southwest along Mendell Street to Evans Avenue, then turn to the southeast along Evans Avenue to Hunters Point Boulevard and into the substation.

Two alternative routes are possible for the natural gas supply from the PG&E system to the site, both originating at the corner of Phelps Street and Evans Avenue. The first would follow Evans Avenue southeast to Mendell Street, turn to the northeast along Mendell Street to Cargo Way, and cross Cargo Way into the site. The second would run northwest along Evans Avenue to Quint Street, turn to the northeast along Quint Street to Cargo Way, then turn to the southeast along Cargo Way and into the site. Natural gas from the Mojave system would originate at a metering station on Cargo Way adjacent to the site and would have a short supply line into the site.



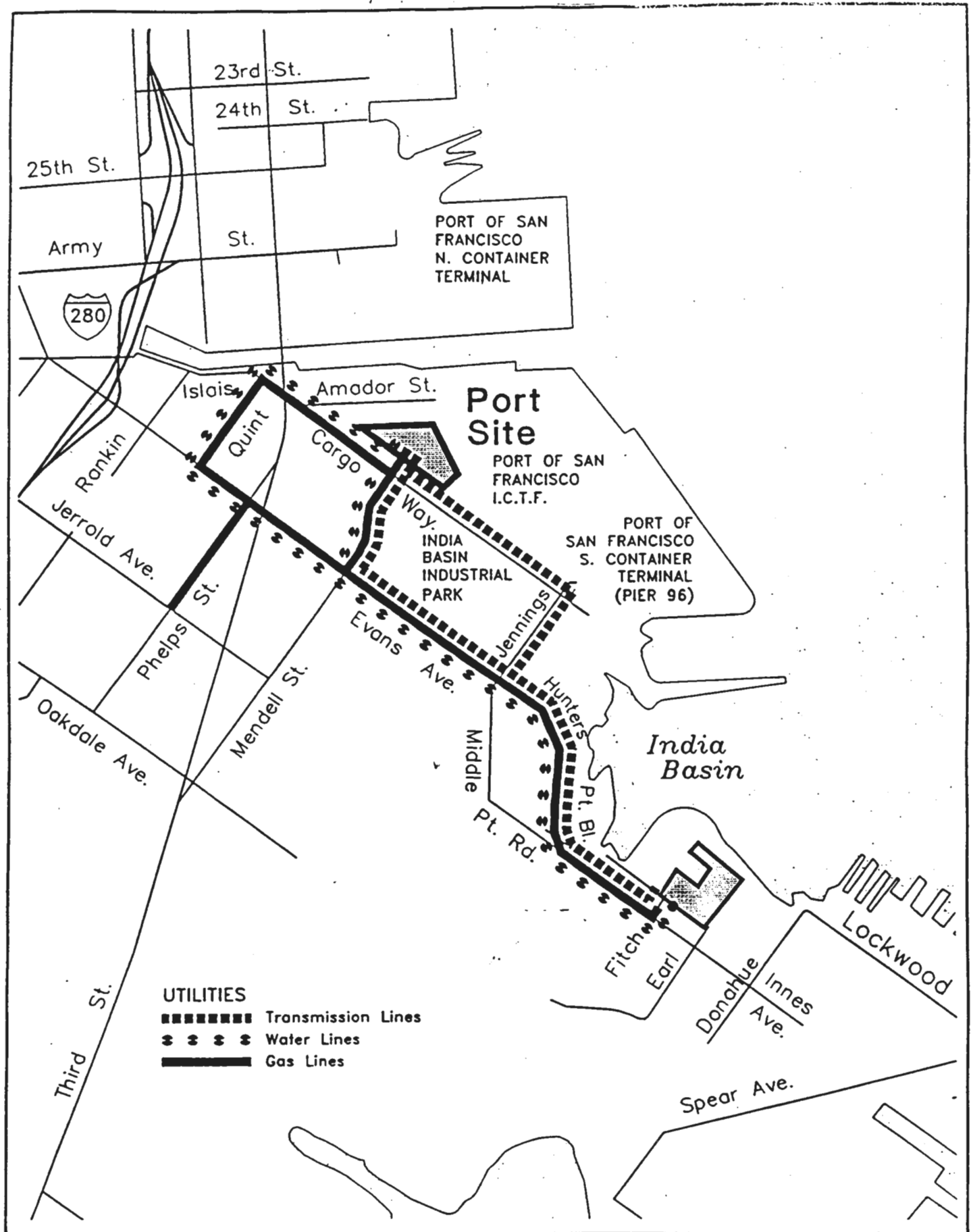
(Source: AFC, Figure 5.10-3.)

TRAFFIC AND TRANSPORTATION FIGURE 2
Inbound Access Routes



(Source: AFC, Figure 5.10-4.)

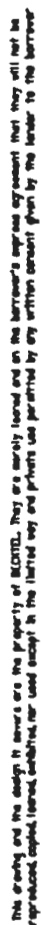
TRAFFIC AND TRANSPORTATION FIGURE 3
Outbound Egress Routes



(Source: AFC, Figure 5.10-9.)

TRAFFIC AND TRANSPORTATION FIGURE 4
Roadways Affected by Utility Construction

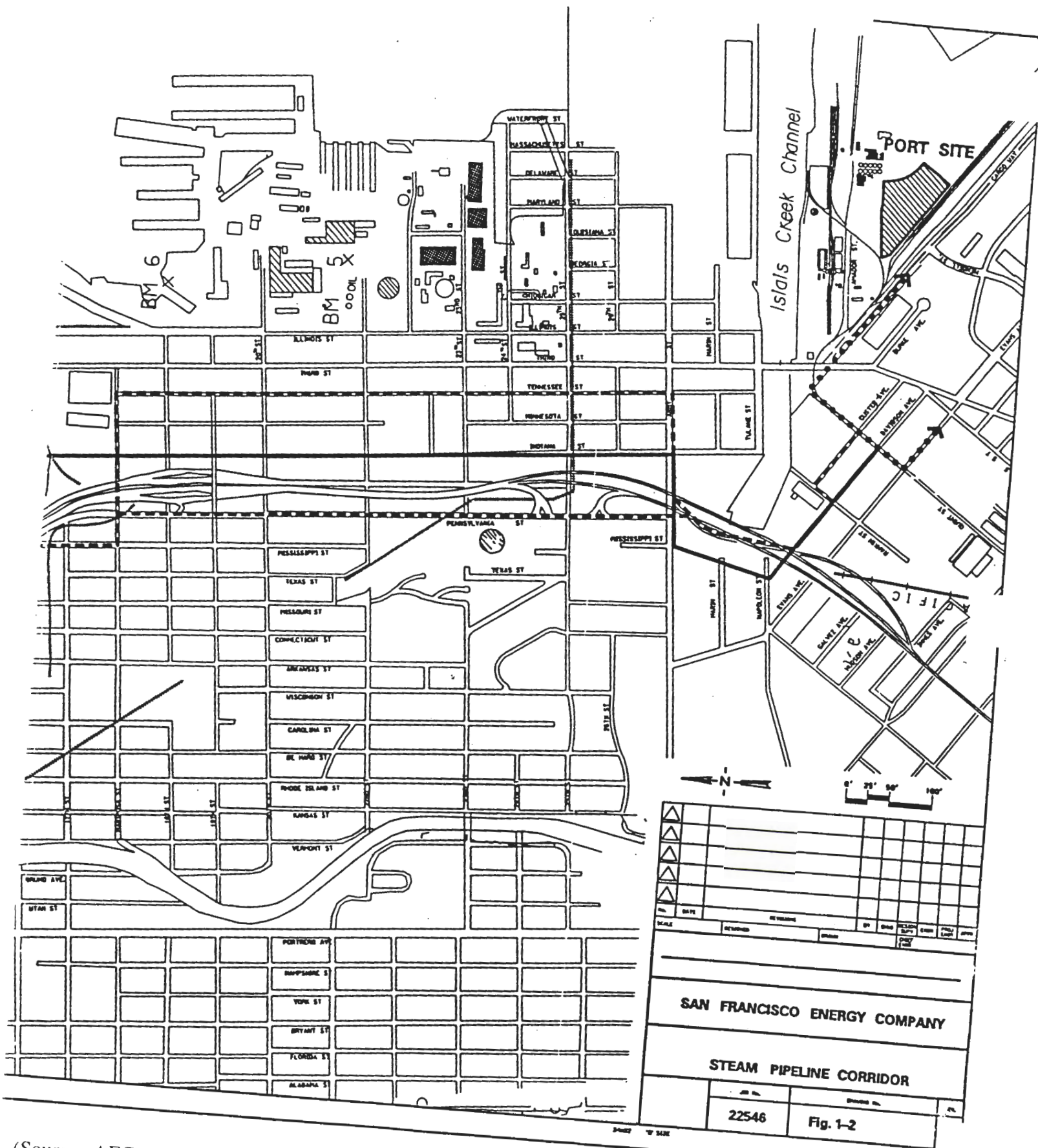
——— STEAM PIPELINE ROUTE
 - - - - ALTERNATIVE STEAM PIPELINE ROUTE
 • • • • UTILITY CORRIDOR DESCRIBED IN AFC



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**SF THERMAL
STEAM PLAN**

TRAFFIC AND TRANSPORTATION FIGURE 5 (CONTINUED) Steam Pipeline Corridor



(Source: AFC, Figure 5.10-9.)

Two possible routes might be used for the water pipeline to the site. The water supply line would originate at the Southeast Water Pollution Control Plant (WPCP) on Phelps Street, run to the northeast to Evans Avenue, turn to the southeast along Evans Avenue to Mendell Street, turn to the northeast in Mendell Street to Cargo Way, and cross Cargo Way into the site. The return lines would reverse this route. The second route would originate at the Southeast WPCP on Phelps Street, run to the northeast to Evans Avenue, turn to the northwest in Evans Avenue to Quint Street, turn to the northeast in Quint Street to Cargo Way, and finally turn to the southeast on Cargo Way to the site. The return lines would reverse this route. The routes for the electric transmission, water supply and gas supply lines are shown in TRAFFIC AND TRANSPORTATION FIGURE 4. The streets affected by the various possible steam pipeline routes are shown in TRAFFIC AND TRANSPORTATION FIGURE 5.

Trenching activities necessary to build the various underground utility transmission lines are expected to proceed at 70 feet per day for each utility in a trench with tie-ins requiring one week of street disturbance. SFEC has stated that no more than 500 feet of roadway and one intersection will be under construction at any one time. Where possible, the utilities will be installed in common excavations. (AFC, p. 5.10-28.) Pedestrian traffic as well as public transit routes will be disrupted during trenching operations.

The cumulative impacts of the project on traffic and transportation are difficult to determine at this time. There are a number of projects under discussion that are located in the project area. These include the San Francisco Executive Park (near Candlestick Park) and re-use of the Hunters Point Naval Shipyard. However, there is no evidence that any of these projects would be under construction during the SFEC project's peak construction period which is scheduled for 1996. Once the project is operating, all major intersections would remain at Level of Service (LOS) "F" with or without the project. Roadway segments along Innes Avenue, Hunters Point Boulevard, and Evans Avenue, from Jennings Street to Phelps Street, would remain at LOS "D" or better with or without the project. Similarly, Cargo Way, Mendell Street, Jennings Street, and Amador Street will function at acceptable levels of service with or without the project. (TRAFFIC AND TRANSPORTATION TABLES 2 AND 3; FSA, Vol. I, p. 589.)

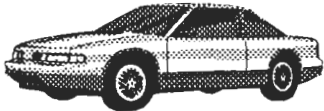
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TRAFFIC AND TRANSPORTATION TABLE 2
Level of Service Interpretation for Unsignalized Intersections

Level of Service	Expected Delay	Reserved Capacity (Vehicles/Hour)
A	Little or no delay	≥ 400
B	Short traffic delays	300-399
C	Average traffic delays	200-299
D	Long traffic delays	100-199
E	Very long traffic delays	0-99
F	Extreme delays potentially affecting other traffic movements in the intersection	≤ 0

(Source: AFC, Table 5.10-4; Transportation Research Board, 1985.)

TRAFFIC AND TRANSPORTATION TABLE 3
Peak Hour Levels of Service

	EXISTING CONDITIONS		CONDITIONS DURING CONSTRUCTION		CONDITIONS DURING NORMAL OPERATIONS OF FACILITY	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Army Street/Third Street	F	F	F	F	F	F
Army Street/Evans Avenue	E (0.965 v/c)	F	E (0.965 v/c)	F	E (0.965 v/c)	F
Evans/Napoleon/Toland	F	F	F	F	F	F
Oakdale Avenue/Industrial Street	-	A (0.500 v/c)	-	A (0.515 v/c)	-	A (0.504 v/c)
Bayshore Boulevard/Industrial Street	-	C (0.751 v/c)	-	C (0.758 v/c)	-	C (0.753 v/c)

v/c = volume to capacity ratio.

(Source: AFC, pp. 5.10-37, 5.10-38.)

3. Summary of the Evidence and Proposed Mitigation.

The Commission must determine whether the project can be constructed and operated in a manner which will not impose a significant impact upon existing traffic conditions and transportation systems.

In order to mitigate impacts to traffic and transportation during construction, the SFEC has proposed a number of measures which are summarized below:

- SFEC will prepare a Transportation Management Plan to detail specific roadway construction information; haul routes; specific data on utility alignments within each street, as determined during the design phase; prohibition of truck traffic during a.m. and p.m. peak traffic periods; signing for disruptions; and public notification identifying location, scheduling, and duration of construction spread.

This management plan will also include necessary Traffic Control Plans for specific roadways and adjacent neighborhoods that may be affected by construction and, if possible and economical, the management plan will provide for barge access and railroad access for heavy equipment and other materials to reduce area-wide traffic impacts.

- SFEC will institute a car/van pooling program during construction of the facility which includes features such as:
 - Organize employee car pools and van pools.
 - Schedule employee arrivals and departures during off-peak times, before 7:00 a.m., between 9:00 a.m. and 4:00 p.m. and after 6:00 p.m. in the evening.
 - Provide premium parking places to encourage car pooling and van pooling for construction employees.

SFEC will transport all hazardous materials during both construction and operation in conformance with federal and state regulations governing the transportation of such materials by contractors licensed to transport hazardous materials. The amount of hazardous materials used at the project and the frequency of hazardous delivery trips is detailed in TRAFFIC AND TRANSPORTATION TABLE 4. (FSA, Vol. I, p. 582.)

TRAFFIC AND TRANSPORTATION TABLE 4
Hazardous Materials Requirements and Traffic Volumes

Hazardous Materials (Consumable) Received at Site			
CHEMICAL	CONSUMPTION	ON-SITE STORAGE	FREQUENCY OF SUPPLY
Aqueous Ammonia 25% Solution	1,000 gallons/day	15,000 gallons	15,000 gallons/month
Sodium Hydroxide	53 gallons/day	6,000 gallons	1,500 gallons/month
Sulfuric Acid	100 gallons/day	12,000 gallons	3,000 gallons/month
Sodium Hypochlorite	500 gallons/day	6,000 gallons	15,000 gallons/month

TRAFFIC AND TRANSPORTATION: TABLE 4 (CONT.)
Hazardous Material Requirements and Traffic Volumes

CHEMICAL	NUMBER OF RAILCARS	NUMBER OF TANKER TRUCKS
Aqueous Ammonia, 25% Solution	1 railcar every month	4 to 5 trucks every month
Sodium Hydroxide	1 railcar every 3 to 4 months	1 truck every 3 to 4 months
Sulfuric Acid	1 railcar every 3 to 4 months	1 truck every 2 months
Sodium Hypochlorite	1 railcar every month	2 to 3 trucks every month

TRAFFIC AND TRANSPORTATION TABLE 4 (CONT.)
Hazardous Materials Requirements and Traffic Volumes

CHEMICAL	QUANTITY PER DELIVERY	TYPE OF DELIVERY	NUMBER OF DELIVERIES ANNUALLY
Cooling Tower Scale Inhibitor	400 gallons	Tanker or Tote Bin	5
Sodium Hypochlorite	5,000 gallons	Tanker	35
Sulfuric Acid	6,000 gallons	Tanker	6
Boiler Chemicals Trisodiumphosphate and Disodiumphosphate	1,000 pounds	Barrels or Bags	12
Amine for Ph Control	150 gallons	Tote Bin	12
Bearing Grease	1 case of 24 tubes	Cases	1
Lube Oil	100 gallons (32 wt.)	Barrels or Cans	4
Water Wash Soap	450	Barrels	1
Ammonia	8,000 gallons	Tanker	50

TRAFFIC AND TRANSPORTATION TABLE 4 (CONT.)
Hazardous Material Requirements and Traffic Volumes

Hazardous Materials Shipped Off-Site			
TYPE OF MATERIAL	QUANTITY	RATE OF SHIPMENT	NUMBER OF SHIPMENTS PER YEAR
Liquid Oily Waste	1-2 Drums*	Every 3 Months	4
Solid Oily Waste	2 Drums	Every 3 Months	4
Cooling Tower Sludge	8-10 Drums	Every 2 Years	1 (Every Alternative Year)
Water Treatment System Sludge	2 Drums	Every 3 Months	4

(Source: FSA, Vol. I, p. 582; AFC, Tables 5.10-12 and 5.10-13 and SFEC 1994c, Data Response.)

* 1 DRUM = 55 Gallon

In order to mitigate potential transportation and parking impacts during construction of the transmission line as well as the water, natural gas supply, and steam lines, SFEC proposed the following measures:

- Whenever feasible, on roadways where trenching occurs within the roadway right-of-way, one travel lane will be left open in each direction.
- Construction work on major roadways and through major signalized intersections will be conducted during off-peak periods.
- Construction trenches will be protected with portable Jersey Barriers and cyclone or wooden fencing.
- Private driveways located within construction areas will be kept open to maintain access to the maximum extent feasible.
- All city fire, police, and paramedic departments will be notified regarding the schedule and duration of construction activities. Alternative routes will be identified that may be used to avoid construction areas. Access for emergency vehicles will be provided to all properties adjacent to the construction site at all times.
- To the extent possible, existing Muni and Golden Gate Transit bus routing and bus stop locations will be maintained during construction.
- At the Cargo Way/Third Street and Evans Avenue/Third Street intersection, existing turn lanes and travel lanes within the intersection will be maintained during peak hours. No construction will be allowed at the intersection during events at Candlestick Park.
- At the Cargo Way/Jennings Street intersection, existing turn lanes and travel lanes within the intersection will be maintained during peak and off-peak hours. No construction will be allowed at the intersection while major truck/container activities occur at Pier 94 and/or at Pier 96. Construction will be restricted to off-peak hours of the Port terminal facility whenever possible.
- Trucks over 5.5 tons will be restricted from Third Street from Jamestown Avenue to Jerrold Avenue, in accordance with City and County of San Francisco Ordinance 500-74. (FSA, Vol. I, p. 591.)

The Commission staff agreed with the mitigation measures proposed by SFEC and recommended that some additional measures be required. These included provisions for

oversized loads, designation of heavy truck routes, repaving of city streets where impacted, advance notice to homeowners of temporarily blocked driveways, consultation with San Francisco Muni, halting construction at Third Street intersections on days when events are scheduled at Candlestick Park, and using steel plates over trenches to maintain traffic flow on Army Street and on 7th Street. (FSA, Vol. I, p. 591-592.)

No other party offered testimony on this topic.

COMMISSION DISCUSSION

The Commission is satisfied that SFEC and the Staff have adequately examined the potential impacts of the project and together proposed a reasonable set of mitigation measures and Conditions of Certification which, if adhered to, will prevent the project from imposing any significant impacts upon traffic and transportation in the area. Furthermore, by following these Conditions, the project will comply with all laws ordinances, regulations and standards which apply to construction and operation of this facility.

FINDINGS AND CONCLUSIONS

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

1. The construction of the San Francisco Energy Project will temporarily increase vehicle traffic and roadway congestion in the project area.
2. During project operation, transportation Levels of Service will be the same with or without the project.
3. The cumulative impacts of project construction depend on the construction schedules of several local projects which are still in the planning stage. The evidence of record does

not establish that these other planned projects will be constructed within the time frame likely for construction of the proposed project.

4. Construction of the proposed project will not cause a long-term decrease in the Level of Service currently experienced on roads and transportation facilities in the project area.
5. Project construction will cause short-term disruptions to the area's traffic and transportation system.
6. The mitigation measures provided in the Conditions of Certification are adequate and appropriate to reduce the traffic impacts of the project, and with their implementation the construction and operation of the project will not create a significant adverse traffic impact.
7. Transportation of hazardous materials will occur on a specifically designated haul routes, and in accordance with applicable law.
8. The project will comply with applicable laws, ordinances, regulations and standards pertaining to traffic and transportation contained in Appendix: LORS of this Decision.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall require that all federal and state regulations for the transport of hazardous materials are observed by project related haulers/shippers of hazardous materials. The project owner shall establish Army Street, Third Street, Cargo Way, Jennings Street and Hunters Point Boulevard as the haul route for hazardous materials. All haulers/shippers of hazardous materials shall be required to use the designated routes.

Verification: The project owner shall maintain, in its compliance file, copies of all shipping manifests related to hazardous material shipments, and shall report in the next periodic compliance report any noncompliance with haulers/shippers using the designated haul route and any corrective measures taken to ensure future compliance.

TRANS-2 The project owner shall comply with City and County of San Francisco restrictions on obstructing traffic on public streets during project construction. The project owner shall obtain the required permit from the City and County of San Francisco.

Protocol: When the project owner/contractor applies for the required permit from the San Francisco Department of Parking and Traffic (pursuant to the City and County of San Francisco Traffic Code, Article 11), specific measures must be provided to address the following issues:

- Emergency access;
- Street closures;
- Temporary travel lane closures;
- Maintaining access to adjacent residential and commercial property;
- Construction periods; and
- Removal of on-street parking.

Verification: In the Monthly Compliance Reports, the project owner shall notify the California Energy Commission (Commission) Compliance Project Manager (CPM) of any permits obtained during the reporting period. The project owner shall maintain copies of these permits and supporting documentation in its compliance file for a period of at least six months after the start of commercial operation.

TRANS-3 The project owner shall comply with City and County of San Francisco requirements for encroachment on a public right-of-way, and obtain necessary encroachment permits pursuant to San Francisco Public Works Code, Section 723.2.

Verification: In the Monthly Compliance Reports, the project owner shall notify the Commission CPM of any encroachment permits obtained during the reporting period. The project owner shall maintain copies of these permits in its compliance file for a period of at least six months after the start of commercial operation.

TRANS-4 The project owner shall comply with City and County of San Francisco Ordinance 500-74 which restricts trucks over 5.5 tons on Third Street from Jamestown Avenue to Jerrold Avenue.

Verification: All project Transportation Control Plans prepared for the project shall specify haul/delivery routes which reflect this restriction.

TRANS-5 Prior to the start of construction the project owner shall consult with the City and County of San Francisco in preparing, and submitting to the Commission CPM for approval a Transportation Control Plan (TCP) which contains the recommendations of the City and County of San Francisco and at least the following elements:

- The TCP will detail specific roadway construction information; haul routes; specific data on utility alignments within each street, as determined during the design phase; prohibition of truck traffic during a.m. and p.m. peak commuting hours; signing for disruptions; and public notification identifying location, scheduling, and duration of construction spread. Peak commuting hours shall mean 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., with the provision that peak commuting hours will be adjusted as directed by the City and County of San Francisco to accommodate commuter traffic on individual sections of city streets.
- The TCP will also include necessary Traffic Control Plans for specific roadways and adjacent neighborhoods that may be affected by construction. The management plan will address the specific requirements for traffic control identified for the specific alternative chosen such as construction timing for specific areas and traffic detours.
- The TCP will recommend routes for the transport of equipment and construction materials. The plan will include specific data on utility easement alignment within each street (as determined during the design phase), construction zone, and staging area.
- The TCP will specify barge access and railroad access for heavy equipment and other materials, if possible and economical, to reduce area-wide traffic impacts.
- The TCP will schedule employee arrivals and departures during off-peak times, before 7:00 a.m., between 9:00 a.m. and 4:00 p.m. and after 6:00 p.m. in the evening.
- The TCP will provide for off-street employee parking in construction areas during peak construction.
- The TCP will specify routes for delivery of oversized loads in accordance with the California Vehicle Code section 35780.

Verification: At least 60 days prior to the start of construction activity, the project owner shall submit the TCP to the Commission CPM for approval.

TRANS-6 Prior to the start of construction, the project owner shall consult with the City and County of San Francisco and the Bayview Hunters Point Clean Environment Coalition (Coalition), and prepare and submit to the CPM for approval, a Transportation Management Plan (TMP) which contains the recommendations of the City and County of San Francisco and at least the following elements:

Protocol:

- Set a goal of achieving a vehicle occupancy ratio (v.o.r.) of 1.5 occupants per vehicle.
- Establish a car/van pool program or alternative means of achieving the v.o.r. of 1.5 including the following elements:
 - Coordinate with regional transportation demand management (TDM) offices, such as Bay Area Rides, to develop TDM resources for construction employees.
 - Organize employee car pools and van pools.
 - Provide premium parking places to encourage car pooling and van pooling for construction employees.
- Establish a monitoring mechanism to regularly monitor and report whether the 1.5:1 ratio is being achieved, and a mechanism to develop and implement additional measures if the v.o.r. of 1.5:1 is not achieved.

Verification: Within 60 days of the start of construction activities, the project owner shall submit the TMP to the Commission CPM for approval. In the Monthly Compliance Reports, the project owner shall report on whether the v.o.r. ratio of 1.5:1 is being achieved, the actual ratio achieved, and proposed remedies if the ratio is not being met.

TRANS-7 The project owner shall, prior to the start of construction of the electric transmission line, water supply line, natural gas supply line, and steam pipeline, prepare and implement a Transportation Control Plan (TCP), which includes the recommendations of the City and County of San Francisco, Muni and Golden Gate Transit, and contains at least the following elements:

- Whenever feasible, on roadways where trenching occurs within the roadway right-of-way, one travel lane will be left open in each direction, delineated by temporary traffic cones/barricades. For minor collectors and neighborhood streets, one lane will be left open with signal persons to direct through traffic.
- Construction work on major roadways and through major signalized intersections will be conducted during off-peak periods (the hours outside of weekday peak commute hours or possibly only at nighttime or on weekends if necessary). Peak commuting hours shall mean 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., with the provision that peak

commuting hours will be adjusted as directed by the City and County of San Francisco to accommodate commuter traffic on individual sections of city streets. Construction within an intersection will be restricted to only half of the intersection at any one time in order to maintain traffic flows.

- Construction trenches will be protected with portable Jersey Barriers and cyclone or wooden fencing.
- Private driveways located within construction areas will be kept open to maintain access to the maximum extent feasible. Advanced written notification will be provided to all homeowners/businesses affected by temporary closure/blockage of their driveways. Metal plates will be used to maintain driveway access at night and on weekends.
- All city fire, police, and paramedic departments will be notified regarding the schedule and duration of construction activities. Alternative routes will be identified that may be used to avoid construction areas. Access for emergency vehicles will be provided to all properties adjacent to the construction site at all times.
- To the extent possible, existing Muni and Golden Gate Transit bus routing and bus stop locations will be maintained during construction. If routes must be diverted to parallel streets, Muni must be consulted and recommendations implemented which could include installation of adequate notices and signing to direct Muni patrons to the temporary routing. Bus stop locations may be temporarily relocated if approved by Muni or Golden Gate Transit.
- At the Cargo Way/Third Street intersection, existing turn lanes and travel lanes within the intersection will be maintained during peak hours. No construction will be allowed at this intersection on days when events are scheduled at Candlestick Park. Construction will be restricted to off-peak hours whenever possible. Construction will also be coordinated with the Port including submittal of the proposed construction schedule to the Port for comments and recommendations.
- At the Cargo Way/Jennings Street intersection, existing turn lanes and travel lanes within the intersection will be maintained during peak and off-peak hours. No pipeline construction will be allowed at the intersection while major truck/container activities occur at Pier 94 and/or at Pier 96. Construction will be restricted to off-peak hours of the Port terminal facility whenever possible.

- During weekday commute hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.), steel plates should be placed over trenches to allow full traffic use of Army Street (at Indiana) and 7th Street.
- An agreement with the City and County of San Francisco shall be executed regarding deliveries of project-related equipment and materials by heavy trucks. The agreement shall include provisions to specify designated heavy truck routes and to repair or replace pavement damaged by project-related heavy trucks.
- Following completion of construction, the project owner shall repave the impacted sections of City and County of San Francisco streets, including raising manhole covers as necessary, in which the water, steam, natural gas, and electricity transmission lines are installed. Repaving shall be performed in accordance with City and County of San Francisco Department of Public Works standards.

Verification: At least 60 days prior to the start of construction activities on the selected routes for the electric transmission line, water supply line, natural gas supply line and steam pipeline, the project owner shall submit the TCP to the CPM for approval. The project owner shall, in the monthly compliance reports to the CPM, report on the use of the above measures in construction of the underground lines and identify any alternative measures that were required to mitigate construction impacts to traffic and parking.

NOISE

The following analysis: 1) identifies potential noise impacts that may result from construction and operation of the project; 2) reviews the proposed mitigation measures; and 3) determines whether implementation of the mitigation measures will ensure compliance with applicable laws, ordinances, regulations, and standards on noise levels. NOISE TABLE 1 defines the technical terms used in identifying and measuring noise impacts.

1. Setting.

Existing noise levels at the site are high due to constant traffic from Third Street to the west and Cargo Way to the southwest, airplane overflights from the San Francisco and Oakland airports, and heavy industrial activity in the area. Industrial noise sources in the immediate vicinity include the Darling International animal rendering plant and the intermodal container transfer facility to the north, the sand and gravel yard to the east, and the rail shunting yard to the southwest. (FSA, Vol. II, pp. 2-3.)

Sensitive noise receptors include residences approximately 2,000 feet to the southwest, a residential area 5,000 feet to the northwest across the I-280 freeway, San Francisco General Hospital 1.5 miles to the northwest, and a City College campus approximately 1,300 feet to the southwest. (*Ibid.*)

2. Potential Impacts.

It is likely that in the absence of mitigation, the construction and operation of the project could increase noise levels in the surrounding community and cause hazardous noise impacts to workers at the project site.

NOISE TABLE 1

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 which is equal to the level of a steady-state condition having the same energy as a 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.

NOISE: TABLE A1 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, dBA	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 which 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.	

(Source: FSA, Vol. II, p. 22.)

3. Summary of Evidence and Proposed Mitigation.

During March-May, 1994, SFEC performed a noise survey of the area near the proposed site to predict the project's potential noise effects on the surrounding community.⁴⁷ (AFC, pp. 5.5-4 et seq., FSA, Vol. II, p. 3.) Ambient noise levels were monitored for 24 hours at five Noise Monitoring (NM) locations as shown in NOISE FIGURE 1 (next page):

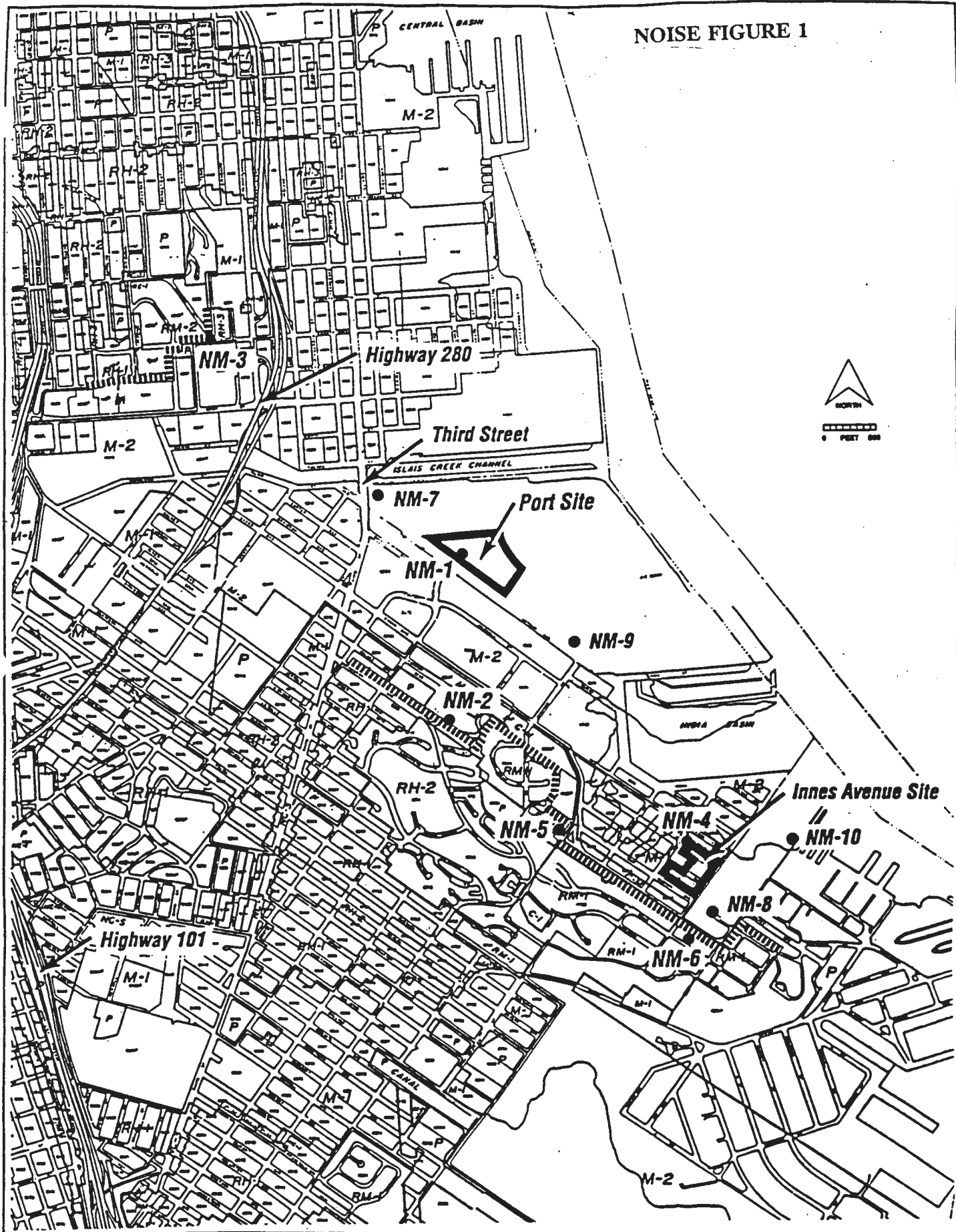
- NM-1: Near Amador Street at the northwest corner of the site.
- NM-2: At the near boundary of a residentially-zoned area approximately 2,000 feet southwest of the site.
- NM-3: At the near boundary of a residentially-zoned area approximately 5,000 feet northwest of and across the I-280 freeway from the site.
- NM-7: On the roof of City Fire Station No. 25 at the corner of Third and Islais Streets, approximately 700 feet northwest of the site. (This site was monitored for an entire week.)
- NM-9: Near the sand and gravel yard, approximately 1,500 feet east of the site.

Results of the noise survey indicate that Community Noise Equivalent Levels (CNEL) at the five NM locations range from 60 dBA at the boundary of the residential area south of the site to 69 dBA at the residential area across the I-280 freeway from the site. See, NOISE TABLE 2. L_{50} levels are lower, ranging from 52 dBA at the site boundary to 62 dBA at the area across the freeway. Average L_{90} levels (background noise) dropped to 59 dBA across the freeway and a low of 49 dBA at the residential area south of the site. (FSA, Vol. II, pp. 3-4.)

⁴⁷ The adverse effects of noise include: subjective effects of annoyance and nuisance; interference with activities such as speech, sleep, and learning; and physiological effects such as anxiety or hearing loss.

Subjective reactions to new noise can be analyzed by comparing the level of existing background (ambient) noise with the level of noise from the new noise source. A change in sound level of 1 dB cannot be perceived and a 3 dB increase is considered barely noticeable. Generally, an increase of 5 dB or more must occur before any noticeable change in community response is expected. A 10 dB change is subjectively heard as an approximate doubling in loudness and would cause an adverse community response. (FSA, Vol. II, pp. 23-24.)

NOISE FIGURE 1



(Source: AFC, p. 5.5-2.)

Figure 5.5-1
Map Showing Zoning and
Noise Monitoring Locations NM-1 through NM-10

NOISE TABLE 2

Table 5.5-1 Summary of Measured Noise Levels at Noise Monitoring Locations

Site	Location	24-Hour Noise Level Descriptors, dBA					
		L ₂₀	L ₃₀	L ₁₀	L _{eq}	L _{dn}	CNEL
Port Site	NM-1	50	52	58	56	61	61
	NM-2	49	53	58	56	60	60
	NM-3	59	62	65	64	69	69
	NM-7	56	59	63	62	66	66
	NM-9	50	53	58	57	61	62
Innes Avenue Site	NM-4	55	58	63	60	64	65
	NM-5	49	55	62	60	65	65
	NM-6	49	54	58	57	62	62
	NM-8	47	49	53	52	58	59
	NM-10	50	52	56	56	61	61

Note: L₂₀, L₃₀, and L₁₀ are averaged levels over a 24-hour period.

Community sound levels are regulated by San Francisco Police Code section 2909. NOISE TABLE 3 shows the maximum permitted noise levels based on zoning districts. (*Id.*, pp. 5-6.)

NOISE TABLE 3
San Francisco Police Code -- Fixed Source Noise Levels

Zoning District	Time of Day	Sound Level (dBA)
R-1-D, R-1, R-2 (One- and two-family residential)	10 p.m. - 7 a.m.	50
	7 a.m. - 10 p.m.	55
R-3, R-3.5, R-4, R-5, R-3-C, R-3.5-C, R-4-C, R-5-C (Multi-family residential)	10 p.m. - 7 a.m.	55
	7 a.m. - 10 p.m.	60
C-1, C-2, C-3-O, C-3-R, C-3-G (Commercial)	10 p.m. - 7 a.m.	60
	7 a.m. - 10 p.m.	70
M-1 (Light industrial)	Any time	70
M-2 (Heavy industrial)*	Any time	75

* The current zoning of the project site is M-2.

(Source: AFC, Vol. II, NOISE: TABLE 4, p. 6; San Francisco Police Code section 2909.)

San Francisco Police Code section 2907 limits noise emanations from powered construction equipment to 80 dBA at a distance of 100 feet (except impact tools such as pile drivers and jackhammers, which must be muffled as practicable), and limits the noise from helicopters used in construction to 85 dBA at 100 feet, for a maximum of two hours per day and four hours per week. Section 2908 prohibits any construction noise, between the nighttime hours of 8 p.m. to 7 a.m., which exceeds ambient noise levels by 5 dBA at the nearest property line. (FSA, Vol. II, p. 5.)

Construction Noise. Project construction will take approximately 18-22 months. (AFC, p. 5.5-21.) Noise emissions from construction activities include:

- Site preparation noise due to engine noise from diesel-powered equipment such as bulldozers, loaders and trucks;

- Foundation work noise caused by bulldozers, ready-mix trucks and other diesel-powered equipment, and pile driving;⁴⁸
- Building, enclosure, and equipment erection noise due to diesel-powered cranes and pneumatically-powered torque wrenches; and
- Facility finishing and startup noise due to diesel-powered trucks and "steam blow", the loudest noise that occurs during project construction.⁴⁹

SFEC has proposed the following mitigation measures to minimize construction noise impacts (AFC, p. 5.5-24):

- All construction equipment will be muffled and shielded according to industry standards;
- Temporary silencers (mufflers) will be installed on steam blow piping to minimize noise;
- Noisier activities, including pile driving and steam blows, will be performed only during daytime hours; and
- A noise complaint resolution program will be instituted to address complaints from surrounding residents.

SFEC relied on noise levels produced by typical construction equipment to predict the potential impacts from project construction noise. (AFC, p. 5.5-22). Construction noise levels will range from 53 dBA to 61 dBA (L_{eq}) measured at the nearest sensitive receptor residences south of the site at NM-2, not including pile driving or steam blows. See, NOISE TABLE 4 below. The high range of 61 dBA is only 5 dBA above the *average* ambient L_{eq} value of 56 dBA measured at NM-2 and would be barely noticeable. See, NOISE TABLE 2, *ante*.

⁴⁸ Pile driving cannot be silenced to meet the 80 dBA limit but will be muffled to the extent practicable, and is expected to last only three weeks. (AFC, p. 5.5-21.)

⁴⁹ After construction of the feedwater and steam systems, the steam line will be temporarily routed to the atmosphere in order to flush dirt and construction debris out of the system. This loud flushing action will last two to four minutes several times daily over a period of two or three weeks. (FSA, Vol. II, p. 7.)

NOISE TABLE 4

Table 5.5-6(a) Construction Noise Levels (L_{eq}), Port Site

Construction Phase	South Residences @ ~2,000 ft dBA	Northwest Residences @ ~5,000 ft dBA	Facility Boundary @ ~0 ft dBA
Site Preparation	61	54	80
Foundation Work	56	49	75
Pile Driving (muffled)	$L_{max} = 63$	$L_{max} = 56$	$L_{max} = 82$
Erection	56	49	75
Finishing	53	46	72
Steam Blow (unmuffled)	$L_{max} = 88$	$L_{max} = 81$	$L_{max} = 107$

Note: Distances are from the closest side of the site boundary.

(Source: AFC, Table 5.5-6(a).)

NOISE TABLE 5

Table 5.5-8(a) Facility Operation Noise Levels Compared With Existing Noise Levels, Port Site

Location	Reduced Facility Noise Level, dBA	Existing Average L_{50} , dBA		Composite Noise Level, dBA	
		Day	Night	Day	Night
Northern Boundary	74	52	52	75	75
Eastern Boundary	71	52	52	70	70
Southern Boundary	65	52	52	68	68
Western Boundary	62	52	52	65	65
South Residences @ ~2,000 ft	48	52	49	53	51
Northwest Residences @ ~5,000 ft	40	62	56	62	56

(Source: AFC, Table 5.5-8(a).)

Noise levels at the City College campus will be approximately 64 dBA, but levels inside the building will be lower. Noise levels at more distant receptor locations, such as San Francisco General Hospital and the residences 5,000 feet northwest of the site, are predicted to range from 46 dBA to 56 dBA, considerably less than the 64 dBA ambient L_{eq} level. See, NOISE TABLE 2, *ante*. Construction noise at these locations will be practically undetectable. (FSA, Vol. II, p. 9.)

With mufflers installed, steam blows are expected to produce noise levels of approximately 73 dBA at the residences south of the site. Although such noise emissions will be disruptive, the relatively short duration of the steam blow process should not result in substantial impacts.⁵⁰ Noise levels due to steam blows at the City College campus will be about 74 dBA but the sound level inside the building should be reduced. At San Francisco General Hospital 1.5 miles away, the steam blow noise level will drop to 62 dBA, which coincides with the average L_{50} value measured at the residences northwest of the site, and should be barely detectable. (FSA, Vol. II, pp. 9-10.)

Operational Noise. SFEC proposes to enclose most of the equipment within a turbine-generator building and to add other enclosures as necessary. (FSA, Vol. II, p. 10.) To analyze potential operation noise impacts, SFEC compared the expected noise emissions during operations with existing noise levels at the NM locations described above. See, NOISE TABLE 5, *ante*.

SFEC asserted that noise levels (average L_{50}) at the most sensitive receptor residences to the south are predicted to rise only 1 dB during the daytime (from 52 dBA to 53 dBA) and 2 dB at night (from 49 dBA to 51 dBA). This is considered an undetectable increase. (FSA, Vol. II, p. 10.)

⁵⁰ The project owner will conduct a public notification program to alert residents prior to the start of steam blow activities.

According to Staff's testimony, however, SFEC's calculations understate the actual noise impacts expected from the project. (FSA, Vol. II, p. 10.) In NOISE TABLE 5 *ante*, SFEC added the expected noise levels from the plant to a figure which is the *average* of actual day and night L_{50} noise levels in a residential neighborhood. Since the powerplant is expected to run day and night, noise levels must be compared to actual *nighttime* noise levels at nearby sensitive receptors. Further, in evaluating nuisance, the added noise from the project must be compared to the background, or L_{90} , noise levels. (*Ibid.*) This comparison is shown in NOISE TABLE 6 below.

NOISE TABLE 6
Port Site Facility Operational Noise Levels
Compared with Existing L_{90} Noise Levels

Noise Level (dBA)	South Residences @ 2,000'	NW Residences @ 5,000'
Existing Lowest Daily L_{90} (AFC Fig. 5.5-2,3)	41	52
Facility Noise Level Contribution at Receptor (AFC Table 5.5-8(a))	48	40
Composite Level (Night) (Facility in Operation)	49	52
Increase in Level (Night)	8	0

(Source: FSA, Vol. II, p. 13, NOISE: Table 4.)

Although the composite noise level of 49 dBA is predicted to be 1 dB below the legal maximum of 50 dBA for a residential neighborhood (S.F. Police Code § 2909; NOISE TABLE 4), this constitutes an increase of 8 dB above the background noise environment, nearly doubling the perceived noise level. As residential use typically includes sleeping at night, this doubling of noise could constitute a significant impact upon residents and would violate the Police Code which limits increases to 5 dBA. (FSA, Vol. II, pp. 13, 15.)

Staff therefore proposed additional mitigation to limit nighttime noise increases to less than 5 dBA based on the background (L_{90}) noise levels. (FSA, Vol. II, p. 15.) The mitigation

plan would require the project owner to install additional silencers and to conduct new community noise surveys of the surrounding residential areas before construction and again within 30 days after beginning project operations. (*Ibid.*) Staff also recommended that SFEC take measures to reduce tonal noise impacts and to control intermittent noise from steam and air vents to prevent any particular source from becoming dominant. (*Ibid.*)

Impacts to Workers. Federal regulations implementing the Occupational Safety and Health Act of 1970 (OSHA) establish maximum noise levels to which workers may be exposed without hearing protection devices. (29 C.F.R. § 1910 et seq.) See NOISE TABLE 8 below. OSHA regulations also require the implementation of hearing conservation and workplace noise monitoring programs. (FSA, Vol. II, p. 4.) California standards are the same as the federal requirements. (Cal. Code Regs. tit. 8, § 5095 et seq.)

NOISE TABLE 8
Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

(Source: FSA, Vol. II, p. 4, NOISE:Table 1.)

In conjunction with OSHA requirements, SFEC will implement additional measures by using equipment, where feasible, that is specified to emit no more than 85 dBA at a distance of three feet or by surrounding noisier equipment with sound attenuating enclosures. (AFC, p. 5.5-25.) Following startup of the facility, the project owner will perform a workplace noise survey

to identify areas which exceed 85 dBA; such high-noise areas will be posted to require that workers wear hearing protection (*Ibid.*). These measures are included in the Conditions of Certification.

No other party offered evidence on this topic.

4. Commission Discussion.

The evidence of record demonstrates that the mitigation measures proposed by SFEC will reduce potential adverse impacts from project noise emissions. The Commission finds, however, that the additional mitigation measures proposed by Staff will ensure that impacts from noise emissions will be reduced to insignificant levels. Therefore, the mitigation measures proposed by both parties are hereby incorporated in the Conditions of Certification to ensure compliance with applicable laws, ordinances, regulations, and standards related to noise exposure.

FINDINGS AND CONCLUSIONS

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

1. SFEC conducted a community noise survey in March-May, 1994 to predict the potential noise effects of the project on the surrounding community.
2. The proposed project site is characterized by high noise levels due to heavy traffic, airplane overflights, and nearby industrial facilities.
3. The nearest sensitive receptors include a residential neighborhood approximately 2,000 feet south of the site, a City College campus 1,300 feet to the southwest, a residential area approximately 5,000 feet to the northwest across the I-280 freeway, and San Francisco General Hospital 1.5 miles to northwest.
4. Except for pile driving and steam blow, the high range of construction noise levels are predicted to exceed the average ambient L_{eq} value by only 5 dBA at the nearest sensitive receptors, which will be barely noticeable, and are therefore considered insignificant.

5. Noisy construction activities will be limited to the hours of 7 a.m. to 7 p.m. on weekdays and 10 a.m. to 7 p.m. on weekends.
6. Pile driving cannot be silenced to meet the maximum standard of 80 dBA but the equipment will be muffled to the extent practicable; noise from pile driving will last only three weeks. This impact is not deemed significant due to the short duration of pile driving activities
7. Loud, sudden noise from steam blow will produce noise levels of approximately 73 dBA at the nearest sensitive receptors but these impacts will not be significant due to the short duration of the procedure and the restriction to daylight hours.
8. SFEC will conduct a public notification program to alert area residents prior to the start of steam blow activities.
9. Most of the project equipment will be enclosed within a turbine-generator building to muffle noise emissions during operation.
10. SFEC will install additional silencers on equipment and conduct new community noise surveys to ensure that increases in nighttime ambient (L_{90}) noise levels due to project operation will be limited to less than 5 dBA at the most sensitive receptor residences.
11. The mitigation measures identified in Findings 9 and 10, above, ensure that increases in ambient noise levels (L_{90}) resulting from project operation will be undetectable to the community, and the noise levels are therefore considered insignificant.
12. SFEC will comply with all applicable state and federal standards related to worker noise exposure and will implement measures, as feasible, to limit equipment noise emissions to 85 dBA at a distance of three feet and/or use appropriate sound attenuating enclosures for noisier equipment.
13. The mitigation measures proposed by SFEC and Staff ensure that impacts from noise emissions associated with project construction and operation will be insignificant, and are therefore incorporated in the Conditions of Certification below.
14. The Conditions of Certification ensure that SFEC will comply with all applicable laws, ordinances, regulations, and standards related to noise exposure as identified in APPENDIX:LORS of this Decision.

CONDITIONS OF CERTIFICATION

NOISE-1 Prior to the start of project construction, the project owner shall post at the project site, in a manner visible to passersby, a telephone number for use by the public to report any objectionable noise conditions associated with the construction and operation of the project. Prior to the start of project construction, the project owner shall also notify the Bureau of Engineering, Department of Public Works that activity at the site has commenced. This notification shall include all of the information posted at the site as well as the name and telephone number of a site representative. The sign and the posted telephone number shall be maintained until the project has been operational for at least one year.

Verification: 30 days prior to the start of construction, the project owner shall transmit to the California Energy Commission Compliance Project Manager (CPM) a statement that the required posting has been made, accompanied by photographic evidence. At least 10 days prior to the start of construction, the project owner shall transmit the required notification to the appropriate office of the Department of Public Works, with a copy to the CPM.

NOISE-2 Throughout project construction and operation, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (see next page 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 to the CPM 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.

NOISE COMPLAINT RESOLUTION FORM

SAN FRANCISCO ENERGY COMPANY
Cogeneration Project (94-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.)

Verification: Within 7 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 CPM documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 7-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 facility construction noise control program. The construction noise control program shall be used to reduce employee exposure to high noise levels during construction and also comply with applicable state and federal OSHA standards.

Verification: 30 days prior to the start of project construction, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to the state and/or federal OSHA upon request.

NOISE-4 The project owner shall ensure that all noisy construction work is limited to the hours between 7 a.m. and 7 p.m. on weekdays and between 10 a.m. and 7 p.m. on weekends. Noisy construction work is that work likely to annoy nearby residents. Steam blows shall be allowed between 7 a.m. and 7 p.m. seven days a week during construction to shorten the period of noise impacts from this operation.

Verification: The project owner shall submit to the CPM in the first Monthly Construction Report a written verification, signed by the project construction manager or equal, that all noisy construction work will be performed only during the above specified hours.

NOISE-5 Prior to the start of construction, the project owner shall perform a 24-hour community noise survey including all residential areas surrounding the project site. The survey shall include octave band measurements to detect any existing tonal noises. Monitoring sites and timing of the survey shall be selected with the approval of the CPM.

Verification: At least 30 days prior to start of construction, the project owner shall submit to the CPM for approval a plan for a community noise survey of the surrounding residential neighborhoods. Upon the CPM's approval of the plan, and prior to start of construction, the project owner shall perform the survey, presenting the results to the CPM in the first Monthly Construction Report.

NOISE-6 The project owner shall ensure that during construction, the project will comply with all applicable noise ordinances, including the requirement that nighttime noise levels at sensitive receptors be less than 5 dBA above ambient nighttime noise levels as determined in Condition NOISE-5.

Verification: The project owner shall submit to the CPM in each Monthly Construction Report a listing and brief description of measures taken to achieve compliance.

NOISE-7 The project owner shall equip steam blow piping with a temporary silencer which quiets the noise of steam blows to approximately 92 dBA measured at the site boundary.

Verification: At least 10 days prior to the first steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer.

NOISE-8 The project owner shall conduct a public notification program to alert area residents prior to the start of steam blow activities. The notification shall include a description of the purpose and nature of the steam blows, the proposed schedule, the expected sound levels and the explanation that it is a temporary operation and not a part of normal plant operations.

Verification: At least 7 days prior to the start of steam blows, the project owner shall notify area residents within a one mile radius of the project site of the planned steam blow activity. The notification may be in the form of letters to the area residences, telephone calls, fliers, town meetings, publication of a notice of the event in the local newspaper(s) or other effective means. Within five days of notifying the area residents, the project owner shall send a letter to the CPM confirming that the area residents have been notified of the planned steam blow activities, including a description of the method of that notification.

NOISE-9 The project shall be designed to avoid raising nighttime noise levels in surrounding residential neighborhoods by 5 dBA or more when compared to background noise levels, as determined by the noise survey conducted under Condition NOISE-5. The project owner shall implement mitigation measures as necessary, including the use of silencers or other appropriate silencing techniques for steam vents and pressure relief valves. In addition, no single piece of equipment shall be allowed to stand out as a dominant source of noise.

Upon the project first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 24-hour community noise survey, utilizing as a minimum the same monitoring sites employed in the pre-project ambient noise survey, and including octave band measurements to detect tonal noises. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. If the results from the survey indicate that operation of the power plant causes noise increases in excess of those permitted under the San Francisco Police Code or in excess of 5 dBA at any sensitive receptors, additional mitigation measures shall be implemented to reduce noise to a level of compliance with the Police Code or to within 5 dBA of ambient levels at the sensitive receptor.

Verification: The project owner shall conduct the above described noise survey within 30 days of the project first achieving an output of 80 percent or greater of rated capacity. Within 30 days of completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise standards, 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-10 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 section 5095 et seq. and Title 29, Code of Federal Regulations, section 1910 et seq. The survey results shall be used to determine the magnitude of employee noise exposure. To the extent feasible, equipment noise will be limited to emissions of 85 dBA at a distance of three feet and/or appropriate sound attenuating enclosures will be installed. 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 all applicable state and federal regulations.

Verification: The project owner shall submit the noise survey report to the CPM within 30 days of completion of the survey, and shall make the report available to the state and/or federal OSHA upon request.

ODOR

This section defines public nuisance odor, analyzes potential odor impacts from the project including potential cumulative impacts, and reviews whether the project will conform with applicable laws, ordinances, regulations, and standards related to odor control.

Energy facilities may produce various nuisance odors due to the handling, storage, and combustion of fuels, and the use of process and emissions control chemicals.⁵¹ Nuisance odors from normal and upset operating conditions differ from project emissions that affect public health due to toxic air pollutants⁵² because the levels at which nuisance odors are usually detected are below those which will produce adverse health impacts.⁵³

The procedures used to investigate impacts from odor sources include: 1) identification and quantification of the potential odor-causing substances from the project; 2) evaluation, using air dispersion modeling, of the potential impacts of odor emissions from the project and other potential sources in combination; and, 3) appropriate mitigation measures to reduce odor emissions if the potential impacts exceed reasonable published odor detection thresholds. (FSA, Vol. I, p. 169.)

⁵¹ These odors are usually caused by reduced sulfur compounds, ammonia compounds, and certain organic and inorganic compounds resulting from emissions of process chemicals from stacks, leaking valves, vents, normal maintenance, and accidents. (FSA, Vol. I, p. 169.)

⁵² Public health effects from exposure to criteria and toxic air pollutants are addressed in the Air Quality and Public Health Sections of this Decision.

⁵³ Although the public generally believes that unpleasant odors indicate a health hazard, this is not always true. Odors are characterized by detectability (or threshold), intensity, character, and desirability (hedonic tone). The perception of and reaction to odors is highly subjective and varies widely among individuals. Some individuals become readily desensitized (odor fatigue) while others become physically ill when exposed to the same odors. The relationship between the intensity or duration of exposure to odor and the magnitude of the symptoms has not been established. Even a pleasant or mild odor can become a nuisance if it occurs regularly. (FSA, Vol. I, p. 170.)

1. Setting.

Odorous emissions similar to those produced by the SFEC project in the site vicinity are associated with the Darling International, Inc. animal rendering plant located to the east of the site; the PG&E Potrero powerplant located to the north; the PG&E Hunters Point powerplant to the southeast; and the Southeast Water Pollution Control Plant (WPCP) located approximately 2,000 feet to the west. The site is zoned Heavy Industrial and adjacent parcels are zoned Heavy and Light Industrial, and Commercial, much of it maritime-related. The nearest sensitive receptor residential zone is approximately 2,000 feet to the south. (FSA, Vol. I, p. 171.)

Wind rose measurements from the PG&E Hunters Point powerplant and WPCP meteorological stations show that the prevailing winds come from the west and are almost never calm.⁵⁴ Thus, it is assumed that most potential odors would be blown from the west towards the Bay, promoting the mixing and dispersion of any odors. During infrequent periods of calm winds or winds off the San Francisco Bay, there is potential for odor impacts in the project vicinity. (*Id.*, p. 172.)

2. Potential Impacts.

The most significant odor sources are the stack and cooling tower, which emit potentially odorous substances during continuous operation. The combustion of natural gas produces some sulfur dioxide (SO₂), which is emitted from the project stack. Ammonia (NH₃), used to control the stack emissions of oxides of nitrogen (NO_x), is also emitted from the project stack. Potentially odorous substances (ammonia and hydrogen sulfide) could also be released from the treatment of secondary effluent and the use of treated secondary effluent in the cooling tower. (FSA, Vol. I, pp. 177-178.) There are also potential odorous emissions from accidental spills of chemicals during transport and delivery. (*Ibid.*)

⁵⁴ See the Air Quality section in this Decision for a discussion of wind patterns.

3. Summary of Evidence and Proposed Mitigation.

There are two types of odor thresholds: the detection threshold and the recognition threshold.⁵⁵ The detection threshold is the lowest concentration⁵⁶ at which an odorant will elicit an olfactory response from 50 percent of an evaluation group. The recognition threshold is the minimum odor concentration at which 50 percent of an evaluation group can recognize the odor. In this case, the detection threshold is more relevant because it indicates when the public will detect an odor emitted from the project. (FSA, Vol. I, p. 170.) Detection thresholds for some odorous substances commonly found at powerplants are identified in ODOR TABLE 1 below.

ODOR TABLE 1
Common Powerplant Odorous Substances and Their Thresholds

Substance	Chemical formula	Source	Odor Threshold, Concentration	
			ppm ^a	µg/m ³ ^b
Ammonia	NH ₃	emission control and sewage treatment	17	11,815
Hydrogen sulfide	H ₂ S	geothermal energy and sewage treatment	0.0094	13
Sulfur dioxide	SO ₂	sulfur combustion	2.7	7,074
a. Detection threshold in parts per million (ppm). Geometric mean of valid, critiqued sources (AIHA 1993).				
b. Conversion from ppm to micrograms per cubic meters (µg/m ³) from Stern 1984				

Source: FSA, Vol. I, p. 171, Odor Table 1.

⁵⁵ The detection and recognition thresholds differ from and are usually higher than the minimum perception level. The minimum perception level occurs when an odor is perceived by the most sensitive receptor, while the odor thresholds are based on the level at which a portion (usually 50 percent) of a group can detect or recognize the odor.

⁵⁶ Concentration is usually measured in parts per million (ppm) or micrograms per cubic meter (µg/m³).

Staff used the air dispersion modeling⁵⁷ performed for criteria air pollutant emissions⁵⁸ to evaluate off-site odor impacts. Staff modeled sulfur dioxide, ammonia, and hydrogen sulfide emissions rates to determine the project's potential odor impacts. Staff also modeled off-site emissions from nearby facilities to calculate potential cumulative impacts. In addition, Staff calculated the probability of whether accidental spills could cause nuisance odors. (FSA, Vol. I, p. 181.)

Stack and Cooling Tower. Potential odor impacts from the worst case stack and cooling tower emissions, as predicted by the air dispersion modeling, are shown in ODOR TABLE 2 below. The impacts for stack odor from sulfur dioxide and ammonia emissions are below their respective odor detection thresholds. The impacts for potential hydrogen sulfide emissions from the cooling tower are just below the odor threshold based on conservative modeling assumptions. (*Ibid.*)

ODOR TABLE 2
Potential Odor Impacts from the Project

Emission	Modeled 1-hour impact ($\mu\text{g}/\text{m}^3$) ^a	Maximum background ($\mu\text{g}/\text{m}^3$)	Total impact ($\mu\text{g}/\text{m}^3$)	TOTAL IMPACT (ppm) ^c	Odor Threshold, Detection (ppm) ^d
SO ₂ ^e	0.89 ^f	109 ^h	109.89	0.04	2.7
H ₂ S ^g	9.2 ^f	NA	9.20	0.0066	.0094
NH ₃ ^h	58.17 ^f	10.7 ⁱ	68.87	0.10	17

⁵⁷ The models are diffusion-based and do not consider decomposition and conversion of the constituents that are modeled.

⁵⁸ See the Air Quality section in this Decision.

- a. Maximum modeled 1-hour impact for either site.
- b. The maximum is for PG&E Hunters Point (SF Energy 1995e).
- c. Conversion Source: Stern 1984
- d. Odor Table 1.
- e. Stack flue gas only.
- f. Maximums occur from a Port site project.
- g. Cooling tower emissions only.
- h. Cooling tower and stack flue gas emissions.
- i. Highest measured ammonium, 1990 - 1993 at the Arkansas Street monitoring station, based on a conservative assumption that the measured background ammonium levels are equivalent or representative of a background level of ammonia. (CARB 1990 - 1993).

(Source: FSA, Vol. I, p. 182, Odor: Table 8.)

Water Processing. The water treatment process used to produce cooling tower make-up water from the secondary effluent may collect and concentrate gases dissolved in the effluent. However, no detectable odor emissions or impacts are expected from this process. Likewise, the process used to produce boiler feedwater make-up and purified water recycled to the WPCP is not expected to produce detectable odor or cause any impact. (FSA, Vol. I, p. 181.)

Chemical Odor. Pure natural gas is odorless and colorless but highly flammable. Disulfide or mercaptan compounds are therefore added for safety to create a detectable odor that would be recognized and controlled before a persistent leak could be smelled off-site as a nuisance. Materials that are odorized for safety purposes, such as natural gas, are exempted from the Bay Area Air Quality Management District's (District) Regulation 7 on Odorous Substances. (*Id.*, p. 182.)

Other chemicals used on-site that are potentially odorous are identified in ODOR TABLE 3, below. Most of these chemicals are stored as liquid or in such small quantities that they should not pose a potential for nuisance odors. The handling, storage, and use of the materials are addressed in the Worker Safety Plan, the Process Safety Management Program, and the Risk Management and Prevention Program (RMPP), which are designed to procedurally and administratively reduce accidental spills of hazardous materials.⁵⁹ These mitigation measures

⁵⁹ See, the Industrial Safety and Hazardous Materials sections of this Decision.

will reduce the potential for nuisance odors from the storage, use, and handling of odorous chemicals on-site to minimal or non-existent levels. (*Ibid.*)

ODOR TABLE 4, below, lists chemicals that emit slight odors or no odor. Sulfuric acid is included in this list as non-odorous because if there is any detectable odor, it would exceed the safe exposure limit. The handling, storage, and use of most of the materials in ODOR TABLE 4 are also addressed in the Worker Safety, the Process Safety Management, and the RMPP programs. Accordingly, no nuisance odors are expected from the storage, use, and handling of the materials identified in ODOR TABLE 4. (*Id.*, pp. 182-183.)

ODOR: TABLE 3
Potentially Odorous Project Emissions

Chemical	Source/Use	Potential Emission/ Quantity Stored		Form	Odor Character
Sulfur Dioxide	Stack, sulfur combustion/NA	---	0.19 g/s	gaseous	metallic/sharp
Hydrogen Sulfide	Secondary effluent treatment/NA	10 $\mu\text{g}/\text{m}^3$ ^a	0.22 g/s	gaseous	rotten eggs
Ammonia	Stack/ NO_x emissions control	10 ppm ^b	3.1 g/s	gaseous	strong smell
	Secondary effluent treatment/NA	50 $\mu\text{g}/\text{m}^3$ ^a	1.12 g/s	gaseous	
	Fugitive emission/SCR	15,000-gallon storage tank		liquid aqueous	
Oxygen scavenger	Fugitive emission/Feedwater oxygen scavenger	500-gallon storage tank		liquid, OPTI-MEEN	amine
Cyclo-hexylamine	Fugitive emission/Condensate system protection	500-gallon storage tank		liquid	strong amine
Natural Gas	Fugitive emission/combustion	Delivery via pipeline		gaseous	rotten eggs, cabbage
a. Loiacono 1994 b. SF Energy 1995a					

(Source: FSA, Vol. I, Odor Table 6; AFC, Table 5.6-3 and Appendix G.)

ODOR TABLE 4
Project NON- or SLIGHTLY-Odororous Substances

Chemical	Use	Approximate Quantity Stored	Form	Odor Character
Sodium hydroxide	boiler and waste water pH control	6,000-gallon storage tank	liquid, 50 % solution	odorless
Sulfuric acid	circulating and cooling water pH control	12,000-gallon storage tank	liquid, 93 % solution	(1)
Sodium hypochlorite	Biocide water treatment	6,000-gallons	liquid, 10 % solution	slight bleach
oxygen scavenger	Feedwater oxygen scavenger	500-gallon storage tank	liquid, COR-TROL 778P	slight
scale inhibitors	circulating water scale inhibitors	1,000-gallon storage tank	liquid, Betz 22 and Betz 40K	slight
Phosphate and metal oxide dispersant	boiler feedwater control	1,000-gallon storage tank	liquid	slight
ammonium bifluoride	cleaning HRSG	not stored/used at startup and once every 3-5 yrs.	powder	odorless
hydrated lime	wastewater treatment	10,000 pounds	powder	odorless
Diatomaceous earth	water treatment	3,000 pounds	powder	odorless
Alum	wastewater treatment	12,000-gallon storage tank	liquid, 8.5 % alum	odorless

(1) If this chemical smell can be detected, it is exceeding the exposure limit.
 (Source: FSA, Vol. I., Odor Table 7; AFC, Table 5.6-3 and Appendix G.)

Cumulative impacts. Even though the project's odor impacts will be insignificant, Staff considered the project's potential cumulative impacts relative to odor emissions of facilities near the project, including the PG&E powerplants at Potrero and Hunters Point, the WPCP boiler and flare, and the rendering plant boiler. Since the project will only emit sulfur dioxide, hydrogen sulfide, and ammonia as potentially odorous materials, the cumulative modeling for nearby facilities involved only those substances. (FSA, Vol. I, p. 183.) The results of the cumulative modeling analysis are presented in ODOR TABLE 5 below:

ODOR: TABLE 5
Potential Cumulative Odor Impacts

Emission ^a	Cumulative impact ($\mu\text{g}/\text{m}^3$) ^a	Background ($\mu\text{g}/\text{m}^3$)	Total impact ($\mu\text{g}/\text{m}^3$)	TOTAL IMPACT (ppm) ^h	Odor Threshold (ppm) ^c
SO ₂	20.9	109 ^d	129.9	0.04	2.7
H ₂ S	131.2 ^e	NA	131.2	0.0918	0.0094
NH ₃	58.9	10.7 ^f	69.6	0.10	17
a. These emissions were modeled using stack data from the project and nearby facilities. Maximum for either site and nearby facilities. b. Conversion Source: Stern 1984 c. Source: AIHA 1993 detection threshold (AIHA 1993) d. The maximum is for PG&E Hunters Point (SF Energy 1995e). e. Maximum impacts occur on SWPCP property. f. Highest measured ammonium, 1990 - 1993 at the Arkansas Street monitoring station, based on a conservative assumption that the measured background ammonium levels are equivalent or representative of a background level of ammonia. (CARB 1990 - 1993).					

(Source: FSA, Vol. I, pp. 183-184, Odor: Table 9.)

The total cumulative impacts, including background levels from the ambient air quality monitoring station for sulfur dioxide and ammonium,⁶⁰ are well below their respective odor thresholds. The cumulative modeling indicates that the combination of potential hydrogen sulfide emissions from the project cooling tower and the hydrogen sulfide from the WPCP may cause

⁶⁰ Staff conservatively assumed that the measured background ammonium levels are equivalent or representative of a background level of ammonia.

odor impacts above the odor threshold. However, these impacts occur on the WPCP property and are due to the hydrogen sulfide emissions from the WPCP. Since the project's hydrogen sulfide emissions will otherwise be negligible, the project will not contribute to any potential nuisance odors.

Proposed Mitigation. The use of natural gas, due to its inherently low sulfur content, will limit sulfur compound emissions impacts to well below the odor threshold. SFEC will perform annual source tests to monitor SO₂ emissions. Staff also recommended that SFEC record fuel use rates and turbine operating data to aid in responding to potential SO₂ odor complaints.

The District's upper limit of 10 ppm on the ammonia emissions rate from the stack will prevent off-site detection of ammonia emissions.⁶¹ Staff's modeling did not indicate that unmonitored stack ammonia emissions would cause an odor impact. Staff recommended, however, that the project's ammonia use rates and turbine operating data be reported to aid in responding to potential ammonia odor complaints.

The concentration of hydrogen sulfide and ammonia emissions produced during secondary effluent treatment will be controlled to reduce the potential for nuisance odors. For either of the proposed secondary treatment systems, hydrogen sulfide will be controlled through the addition of oxidizers (sodium hypochlorite, bromine, and/or hydrogen peroxide) that will convert hydrogen sulfide to sulfates and limit biological activity that might produce additional H₂S. Therefore, the project will not cause any hydrogen sulfide impacts or contribute to existing hydrogen sulfide levels.

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⁶¹ See, Condition of Certification AQ-14 of the District's Determination of Compliance in the Air Quality section of this Decision.

The natural gas pipeline and combustion systems are designed in accordance with current engineering standards to prevent accidental leakage.⁶² Thus, all feasible mitigation is in place to minimize or eliminate potential nuisance odors from natural gas.

SFEC has proposed an Odor Complaint Procedure to identify and reduce or eliminate nuisance odors. See, ODOR FIGURE 1. In addition, the San Francisco Department of Public Works and the District have viable odor complaint processes that have worked to reduce nuisance odors.⁶³

District Regulation 7 prohibits the discharge of substances that remain odorous beyond the facility property line after dilution with four parts odor-free air. Regulation 7 limits ammonia emissions to 5,000 ppm. Because the ammonia emissions from the selective catalytic reduction (SCR) system will be limited by the District's permit conditions to 10 ppm, the facility will comply with this regulation.

4. Commission Discussion.

The evidence presented on potential nuisance odor was uncontroverted. Potential odor impacts from stack and cooling tower emissions are below odor thresholds and will not cause adverse impacts. The water treatment and purification processes will not produce detectable odors or cause any impacts. The proposed mitigation will ensure that odor impacts are insignificant or non-existent for SO₂, ammonia, and H₂S emissions. Staff's recommended reporting requirements are included in the Conditions of Certification to aid in responding to odor complaints. SFEC's proposed odor complaint process ensures that the project owner will respond effectively to public concern in the event of detectable odorous emissions.

⁶² See, Hazardous Materials section in this Decision.

⁶³ In response to public complaints regarding nuisance odors, the City has implemented an *Odor Hot Line*, and prompted improvements to the boiler and flare at the WPCP, as well as improvements to the incinerator at the rendering plant. The *Odor Hot Line* number is (415) 557-6833. The District complaint line is 1-800-334-ODOR (6367).

ODOR FIGURE 1
SF Energy Odor Complaint Procedures

SF Energy Odor Complaint Procedures

Upon receipt of a complaint, a SF Energy Company staff member will be made available to either meet with the complainant or to talk with the complainant on the telephone. During this initial discussion, the staff member will make a record of the following:

- the complainant's name and phone number or address;
- the description of the odor (e.g., pungent) that was (is) perceived by the complainants;
- a description of the location where the odor was (is) perceived;
- date and time of the complaint; and
- a reading of the facility operating parameters taken at the time of the complaint.

The staff member will take action to:

- confirm the complaint;
- identify the source(s) of odors; and
- take corrective action.

After the above measures have been taken, or no later than 48 hours after the complaint is received, the staff member shall re-contact the complainant and provide the complainant with the information regarding whether SF Energy was able to confirm the odor. Additionally, any corrective and/or investigative action the SF Energy facility has taken or plans to take shall be provided to the complainant. All reasonable steps shall be taken to ensure the complainant that the SF Energy facility will be completely responsive in resolving any odor concerns the public may have.

The operator shall document the following:

- the ability to confirm the odor complaint;
- any corrective action taken to reduce or eliminate the odors; and
- any future corrective and/or investigative action to be taken to resolve the odor and/or the complainants concern.

(Source: FSA, Vol. I, p. 187, Odor Figure 1.)

FINDINGS AND CONCLUSIONS

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

1. Energy facilities may produce various nuisance odors due to the handling, storage, and combustion of fuels, and the use of process and emissions control chemicals.
2. Nuisance odors from project operation differ from emissions that affect public health because nuisance odors are generally detected at lower levels than odors from toxic emissions.
3. The most common powerplant odor sources are emissions of sulfur dioxide (SO₂), ammonia (NH₃), and hydrogen sulfide (H₂S) from the stack, cooling tower, and water treatment processes.
4. Worst case scenario modeling for the project's potential odor impacts from stack and cooling tower emissions indicate that odor from sulfur dioxide (SO₂), ammonia (NH₃), and hydrogen sulfide (H₂S) emissions are below odor detection thresholds and are, therefore, insignificant or non-existent.
5. No detectable odor emissions or impacts will result from the water treatment processes used to produce cooling tower make-up water, boiler feedwater, or purified water that is recycled to the Southeast Water Treatment Control Plant.
6. The handling, storage, and use of chemicals on-site will be controlled by the Worker Safety Plan, Process Safety Management Program, and the Risk Management and Prevention Program to reduce or eliminate the potential for nuisance odors from accidental spills or leakage.
7. Natural gas is odorized to permit detection of leaks for safety purposes; in the event of leakage, it will be recognized and controlled before the odor could be smelled off-site.
8. The project will not contribute to any cumulative nuisance odor impacts in the site vicinity.
9. SFEC's Odor Complaint Procedure ensures that the project owner will respond effectively to public concern in the event of detectable odorous emissions.
10. Implementation of the Conditions of Certification ensures that the project will comply with all applicable laws, ordinances, regulations, and standards related to nuisance odor as identified in APPENDIX: LORS of this Decision.

CONDITIONS OF CERTIFICATION

ODOR-1 The project owner must maintain records of fuel usage rates, turbine loading levels, hours of operation, ammonia use rates, quantities of secondary effluent treated and used at the project site, and quantities of oxidizers (sodium hypochlorite, hydrogen peroxide or bromine) used in the treatment of the secondary effluent.

Verification: After the start of operation of the project, these records shall be maintained at the site and be available for two years.

ODOR-2 The project owner shall use an oxidizer (sodium hypochlorite, hydrogen peroxide or bromine) to oxidize hydrogen sulfide in secondary effluent treated for use and sale by the project.

Verification: The project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) the final design specifications for the oxidizer systems 60 days prior to project start-up showing how and where the oxidizers are added to all the secondary effluent treatment processes used at the project site.

ODOR-3 The project owner shall test for hydrogen sulfide in the treated secondary effluent streams quarterly for the first year after start of operation and annually thereafter.

Verification: The project owner shall submit the hydrogen sulfide measurement test results to the CPM within 30 days after each test.

ODOR-4 Throughout the construction and/or operation of the project, the project owner shall document, investigate, evaluate and attempt to resolve all project related odor complaints.

Protocol: Upon receipt of a complaint, the project owner shall have an employee either meet with the complainant or talk with the complainant by telephone. During this initial discussion, the employee will make a record of the following:

- the complainant's name and phone number or address;
- a description of the odor (*e.g.*, pungent, rotten egg) that was (is) perceived by the complainant;
- a description of the location where the odor was (is) perceived;
- the date and time of the complaint; and
- a listing of the facility operating parameters taken at the time of the complaint.

Following receipt of the complaint, the employee will:

- identify the source(s) of the odor(s); and
- take corrective action.

No later than 48 hours after the complaint is received, the employee shall re-contact the complainant to provide information regarding identification of the sources of the odor and any corrective and/or investigative action the project owner has taken or plans to take.

The project owner shall file with the Bay Area Air Quality Management District and the CPM, a copy of the report containing:

- the complainant's name and phone number or address;
- a description of the odor (*e.g.*, pungent, rotten egg) that was (is) perceived by the complainants;
- a description of the location where the odor was (is) perceived;
- the date and time of the complaint;
- a listing of the facility operating parameters taken at the time of the complaint;
- the source(s) of the odor(s);
- any corrective action taken to reduce or eliminate the odor(s);
- any future corrective and/or investigative action to be taken to resolve the odor and/or the complainant's concern; and
- documentation of re-contact by the project owner of the complainant to provide the information regarding the source of the odor, and any corrective and/or investigative action the project owner has taken or plans to take.

Verification: Within 30 days of receiving an odor complaint, the project owner shall file the required report with the Bay Area Air Quality Management District and the CPM. If mitigation is required to resolve the complaint, and the complaint is not resolved within the 30-day period, the project owner shall submit an updated odor complaint report when the mitigation is finally implemented.

ENVIRONMENTAL JUSTICE

INTRODUCTION

The stage for the environmental justice debate was first set when San Francisco Energy Company (SFEC) filed its Application for Certification (AFC) for two potential sites for the proposed project. Innes Avenue was SFEC's original preferred site because private ownership of the site allowed SFEC to secure site control to comply with PG&E's bid specifications in a way which could not occur with the Port-owned site. The Innes Avenue site is located on the waterfront below an area of Hunters Point undergoing transition to a residential neighborhood. The alternative, and now preferred, Port site is a large parcel of undeveloped property within the industrially zoned Port.

Community opponents, focusing on the Innes Avenue site as another example of an unwelcome polluting industrial use disproportionately impacting a minority community, suggested that environmental justice was clearly a one-sided issue - to build the powerplant would be an environmental injustice. Some opposed the powerplant at either site, while others urged the Port site as a way to avoid the impacts at the Innes Avenue site.

The Commission's regulatory process eliminated the Innes Avenue site from active consideration before the beginning of formal hearings on the project. This is discussed in greater detail later in this section.

For the supporters of the Port site who see it as a harbinger of appropriate development and source of community economic benefits, environmental justice evolved into a two-sided issue: the opponents' view on one side, and the supporters' view on the other - **not** building the powerplant would be an environmental injustice.

At the heart of this dichotomy is the question of whether this project is:

one like previous industries which have left toxic wastes in the water and ground, polluted the air, and marked the neighborhoods and the Hunters Point community as an undesirable place to live and work;

OR,

one which cleans up an unused site, uses state-of-the-art pollution control, locates an industrial use in an exclusively industrial zone, commits to providing local jobs, and offers long term economic benefits to the community.

These questions accurately portray the intertwining of, and possible tension between, two very contemporary doctrines about development in communities of color and low income communities.

On the one hand, environmental justice⁶⁴ is an emerging area of environmental law and public policy which focuses on any policy, practice or directive that, intentionally or unintentionally, differentially impacts or disadvantages individuals, groups or communities *based on race or economic status*. The environmental justice movement was spawned by a pattern of locating noxious and health endangering development in minority and low income communities, thereby subjecting residents to a disproportionate burden of pollution and health impacts. The early literature on environmental justice describes a range of uses from hazardous waste treatment and storage, waste incineration, chemical plants, etc., in minority and low income communities despite virtually universal community opposition to their presence.

On the other hand, there is a substantial, evolving concern in land use law and policy over "brownfielding" which means that former industrial sites located in the urban core are abandoned due to potential contamination. Since such sites are often located in or next to minority and low income communities, there emerges an urban wasteland of potentially

⁶⁴ Associated terms are "environmental racism" and "environmental equity."

contaminated sites which would remain undeveloped - whether residential, commercial or industrial - due to fears of liability for uncontrollable clean-up costs. Developers seeking to avoid such liability instead turn to the "greenfields" of the suburbs or rural areas. This reincarnation of flight from the inner city, economically driven, leads to loss of an urban tax base, loss of property value, loss of jobs, and loss of development capital in already economically disadvantaged communities. (See, *Brownfields, Recycling Contaminated Urban Land, Land Use & Environment Forum*, CEB Vol. 4, No. 3, Summer 1995).

The Commission has thoroughly reviewed the testimony of all the parties and many of the environmental justice references listed in the Intervenor's expert witnesses' testimony. The Commission has chosen to shift from the format used in most of this Decision where individual testimony has been outlined and sometimes critiqued for the following reasons:

FIRST:

This project is not the prototype of the facilities condemned in the environmental justice literature. This project is a natural gas-fired cogeneration powerplant. In the Commission's search of the environmental justice literature, this type of project has not been the subject of case studies because, presumably, it is wholly unlike hazardous waste and other noxious facilities which have spawned the environmental justice movement. In fact, most energy and air quality agencies regard natural gas-fired combustion turbine technology to be one of the, if not *the*, cleanest and most efficient forms of thermal electric generation.⁶⁵ Combustion turbine technology has never been characterized on a par with waste dumps or waste incinerators.

Additionally, the environmental justice literature has reflected universal minority community opposition to such facilities, arguing that site selection was based on

⁶⁵ Energy Technology Status Report, California Energy Commission, 1992, p. 2-91. Also, Power Engineering, March 1994, p. 23.

race and/or economic status. Importantly, there is no universal public opposition to construction of the SFEC project. Rather, there is a division⁶⁶ of opinion within the community of Hunters Point as to whether the project is supported or opposed. In simple terms, some view it as part of a solution for the future whereas others view it as part of a continuing problem from the past.

However, as it affects this environmental justice review, the difference in technology and the presence of meaningful community support suggests that the SFEC project is not an obvious match with the kinds of facilities condemned in the environmental justice literature. Thus, the policy equities are not so sharply drawn and legal precedents are not so clearly applicable.

SECOND:

Environmental justice in a setting of mixed community support and opposition is a difficult issue to address, even for committed environmental justice advocates. The Committee engaged the Intervenor's principal environmental justice witness, a law school professor, in a discussion of the effect of the democratic process on environmental justice determinations. The question of whether an action is environmentally unjust is not answerable when the minority community itself is divided on a matter such as this project. This point was illustrated in the following testimony:

QUESTION: "When you have one neighbor saying "yes" and the other saying "no," where do you go from there in an environmental justice setting?"

ANSWER: "... I don't know how to answer that question." (RT 256: 20-257:4.)

⁶⁶ The Commission believes that it would be inappropriate to attempt in this proceeding to determine whether one view is more representative of the community than another as a ground for any discretionary action. Suffice it to say that there is a combination of average citizens as well as recognized community representatives on both sides of the debate.

The Commission believes that if the Intervenor's leading advocate for environmental justice cannot answer that question definitively then this case does not fit the prototype. Environmental justice standards appear to be more apparent when there is no diversity of opinion in the affected community.

THIRD:

During the cross-examination of witnesses there arose inconsistencies, which under scrutiny confirmed that this natural gas-fired cogeneration project is not the prototype case arising from the fundamental environmental justice doctrine. (7/19/95 RT 242:12-23; 252:13-253:5; 257:3-13) No purpose would be served in reciting that scrutiny in detail if it concomitantly tended to undermine any important aspects of the environmental justice movement.

Finding the Environmental Justice Standard - LORS

Merely because an answer is not manifestly clear in a divided community does not mean that the question should be ignored or that a quick answer is better than none. Under one approach, advocates could argue that any project, whether it has positive or negative impacts, is environmentally unjust simply because it is located in a minority community and not somewhere else. That view of an appropriate standard is too narrow and arbitrary for it would label all projects, the good and the bad, as environmentally unjust on the basis of only one criterion - i.e., "where" they are located.

Therefore, the Commission seeks some standard by which it can fairly evaluate, in an environmental justice context, the impacts upon a local community caused by the siting of this powerplant. To meet the requirements of due process as well as common sense, these standards should be objective. As it turns out, the Commission has addressed the issues embedded in the environmental justice arena in this and every other past powerplant siting case, albeit not under the label of "environmental justice".

The Commission believes that determining compliance with all applicable laws, ordinances, regulations, and standards (LORS) is the analytical framework for making findings on whether there will be impacts, as well as the significance of those impacts on the human and natural environments. From this, the Commission can conclude whether environmental justice or *injustice* will occur.

The scientific foundation of this compliance analysis of numerous environmental, health and safety, and engineering disciplines is to assess the cumulative effects of adding impacts of the proposed facility to the impacts that occur in the existing environment. This cumulative impacts analysis enables the Commission to then evaluate the question of whether there is a disproportionate burden of incompatible or less desirable activities and toxic sites on affected communities. If a significant project impact is found, the Commission is charged with a legal duty to mitigate such impact to insignificance.

One of the reasons the Commission was given consolidated licensing jurisdiction twenty years ago was to prevent a local agency from denying, based on NIMBYism⁶⁷, one of a multitude of essential permits thereby blocking an electricity project which was needed to meet a State-wide or area energy demand. For those with concerns over such a concentration of regulatory power, however, one of the benefits of the comprehensive jurisdiction of the Commission is that all of the community issues are addressed in one forum.

LORS compliance encompasses the California Environmental Quality Act (CEQA) which identifies potential environmental and community impacts and seeks to reduce or eliminate potential impacts to levels of insignificance through appropriate project modifications and feasible mitigation measures. The project is also subject to review under the federal and state Ambient Air Quality Standards which are derived from public health protection considerations. Additionally, the Commission independently conducts public health and public safety analyses for compliance with applicable laws. Next, the design, construction and operation of the

⁶⁷ NIMBY, Not In My Back Yard

proposed project are subject to engineering review to assure compliance with all applicable laws. Compliance with **all** applicable laws and local land use plans is essential for certification of a project by the Commission. Unmitigable non-compliances, if they ever exist, cannot be ignored or excused. All reasonable and feasible mitigation and alternatives are explored and implemented. If residual significant impacts exist after this process, an applicant must pass a rigorous test to seek to "override" a non-compliance. (Pub. Resources Code, § 25525)

The Commission is satisfied that LORS compliance, the protection of public health and safety, the evaluation of local community impacts, and the fact that the decision on all pertinent elements is reached in a process which is open and encourages public participation combine to provide what the Intervenors term an "environmental justice review". As discussed later in detail, if the review of the Innes Avenue site were considered a test-run for environmental justice, LORS compliance would have eliminated the Innes Avenue site by objective standards which are indicators that the location was environmentally unjust because it would have resulted in adverse and unmitigable impacts in a neighborhood in transition from industrial to mixed residential/commercial. Moreover, LORS compliance is a multi-faceted public exercise which does not focus on any one criterion, but rather can openly, and with public input, balance the burdens and the benefits to a community as a measure of environmental justice.

Licensing Review in Action

Access & Participation.

From the day SFEC filed for the project, the regulatory review process has been more than merely open to the public. In addition to traditional mailed notice to property owners and newspaper notices, the Commission's Public Adviser's Office engaged in a month's long outreach effort to inform the affected public of the proceeding, including multi-language newspaper notices. The Siting Committee and Commission staff conducted thirty-five public hearings and workshops in San Francisco during the days and evenings.

The community was informed, and influenced the preparation of the *Preliminary Staff Assessment* (PSA) which was the Staff's initial effort to identify potential project impacts, discuss needed mitigation, and review alternatives to the project. By this point, neighborhood groups were represented by lawyers and law students. Public comments at workshops helped shape the *Final Staff Assessment* (FSA).

As is reflected by the record, many points of view and contending assertions were received during the evidentiary hearings. The record stands as a testament to the very competent efforts by the Intervenors in all phases, as well as by SFEC and the Staff. All of this demonstrates that every participant in the proceeding had a meaningful opportunity to be heard and to influence the outcome of this Decision.

Innes Avenue - The Public Process Works.

When the AFC was filed, SFEC's primary site was located on Innes Avenue. The Port site was its alternate. The Innes Avenue site was located on the south side of India Basin on earthen fill. That is where the similarity with the Port site ends. The Innes Avenue site is located less than 1/2 mile below newly developed and existing hillside residences. The fill site is not part of the Port, but is part of a smaller scale, light-industrial and commercial waterfront. Adjoining the site on the Bay-side is a planned public park.

At the initial public informational hearings to receive citizen comments about the proposed project (October 11, 1994), there was almost universal opposition to the Innes Avenue site, not only from nearby residents on Morgan Heights, but also Hill View, and other neighboring communities.

Between September 1994 and mid-April 1995, the Staff conducted a series of public workshops in the community to assist in the development of the environmental and community impacts review. In its April 14, 1995, PSA, the Staff provided its preliminary view as to the proposed project's compliance with applicable laws, its potential to create significant adverse impacts, and the feasibility of mitigation or alternatives to reduce or eliminate those impacts. The Staff found that the Innes Avenue site created significant adverse land use, visual, and socio-economic impacts which could not be mitigated.

Specifically, Staff determined that the Innes Avenue site would not comply with the Draft South Bayshore Plan and Municipal Planning Code, and Master Plan because it would exacerbate a conflict between residential and industrial land uses. Also, the height of the structures exceeded applicable limitations. For some, the project would literally be within a stone's throw of their living room windows or porches.

In short, construction of the proposed project at the Innes Avenue site would have perpetuated conflicting industrial versus residential land uses. It would have halted any possible transition of this part of the community to the waterfront commercial and maritime uses which complement the residential character of the hillsides. On those grounds, Staff made a preliminary recommendation that the Innes Avenue site should not be certified.⁶⁸

⁶⁸ Staff's review of the Innes Avenue site would have proceeded to its Final Staff Assessment, issued June 16, 1995, if the Committee had not issued to SFEC an ORDER TO SHOW CAUSE why the regulatory review of the Innes Avenue site should not be suspended indefinitely. In response to the ORDER TO SHOW CAUSE, SFEC withdrew the Innes Avenue site from active regulatory review.

The Commission's comprehensive LORS review goes to the heart of the environmental justice issue. Moreover, the Commission's process ended consideration of the Innes Avenue site, a proposed project site which would have created burdens for the community disproportionate to any benefits. The Commission's process, therefore, captures the tenets of environmental justice.

On the other hand, what did the LORS review show as to the remaining Port site? The Port site is isolated on property with an industrial character. There are no land use conflicts, the property is zoned for industrial use, and is not part of or immediately adjacent to residential developments. Further, there are no current government plans to transition areas surrounding the site to uses compatible with residential uses. The heights of the powerplant structures are within permissible limits. Views of the facility by residents will be from a distance. The burdens on the community surrounding the Port site, if any, are far less severe than the burdens on those surrounding the Innes Avenue.

Project Impacts Mitigated to Insignificance.

In formulating this Decision, the Commission reviewed every potential environmental impact considered pursuant to CEQA and concluded either the project would not cause a significant impact or that potential impacts have been mitigated to a level of insignificance by modifications to the project or other measures. The Staff and Intervenors have left no stone unturned in assessing not only the existence of a fatal flaw to the project, but also whether much lesser potential impacts required mitigation in order to assure insignificance.

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ADDRESSING COMMUNITY HEALTH CONCERNS

Pathways.

The Commission recognizes the concerns of the public, whether supporters or opponents, about potential health impacts from the project and its addition to an already burdened community. The Commission accepts the description of Bayview Hunters Point as a community which is burdened by an industrial past which has left behind toxic contamination of ground and water and, to some degree, the residual air pollution from PG&E's existing powerplants. Bayview Hunters Point is the locale for a federal Superfund Site at the Hunter Point Naval Shipyard, a state superfund site, the waste water treatment plant, PG&E's powerplants, an animal rendering plant, and numerous other leaking or non-leaking storage tanks or disposal sites. The Intervenor has posited a linkage between these two factors and the incidence of cancer. This is premised on the environmental justice principle of harm from a disproportionate number of sources that have public health consequences.

However, the Intervenor's own evidence and a post-hearing San Francisco Health Department report, state the following:

The purpose of this study is to determine if the incidence of these cancers [breast & cervical] is increased compared to San Francisco or the Bay Area but cannot determine if any of the results found are related to any possible environmental exposures. (SFHD, p. 2.)

Given the limitations of this study, no conclusions can be made at the present time about the potential impact of environmental carcinogens on cancer incidence in Bayview/Hunters Point. The two cancers which were found to have elevated levels have very different risk factors and are unlikely due to a common cause. (SFHD, p. 6.)

In all four studies,⁶⁹ no associations were found with cancer or with other causes. (Ex. 23, p. 115.) (Emphasis added.)

Simply put, the causality of the cancers cannot be scientifically linked to environmental carcinogens. The Intervenor's own literature associates these cancers historically with non-environmental causes. (SFHD, pp. 5-7.)

Notwithstanding, the question which still must be asked and answered is does the SFEC project exacerbate existing conditions?

Perhaps the best way to answer the question is to begin asking how the powerplant could affect any individual member of the community? There are three generally accepted "pathways" for environmentally caused health impacts: (1) inhalation, meaning breathing; (2) ingestion, meaning eating; and (3) contact, meaning touching or indirect absorption.

Two of these -- ingestion and touching -- are easily addressed. There will be no public access to the powerplant which would permit contact with the facility, including its machinery and on-site chemical storage. The transmission line, fuel line, water lines and steam line will all be buried underground. The project will not discharge effluents or chemicals to the groundwater, any public potable water source, or the Bay.

All chemicals and substances which are delivered onto the site are required to be in approved trailers and travel along approved routes at times to avoid accidents and minimize contact with the public. These chemicals will be transferred to on-site storage in a manner best calculated to prevent discharges. The Commission has addressed all of these matters with Conditions of Certification so that any potential public health and safety impacts are reduced to insignificance.

⁶⁹ Four daily mortality studies were used to establish an association between mortality and particulate concentration: Fairley; Pope; Schwartz; Schwartz.

The remaining pathways are inhalation and indirect absorption, which refers to air quality matters. The Bay Area Air Quality Management District (BAAQMD), SFEC, and the Commission staff have all independently analyzed the potential air quality and public health impacts from emissions from the project. The federal and state Ambient Air Quality Standards defining criteria pollutant levels are enacted to protect public health. The project will comply with all of these standards, and this evidence is acknowledged and uncontroverted by Intervenor's PM₁₀ witness. (9/12/95 RT 142:13-16)

Notwithstanding compliance with New Source Review rules, the Staff and Intervenor's presented evidence of a CEQA-based impact regarding the project's contribution to PM₁₀ violations. As discussed in the **AIR QUALITY** and **PUBLIC HEALTH** sections, the Commission reviewed the expected emissions of the project in the community, the annual and maximum PM₁₀ air quality setting, and the causes of winter violations. As a result, the evidence establishes that while there was a measurable impact to the community, there was no *significant* PM₁₀ impact.

In addition to reviewing criteria pollutants, the BAAQMD, SFEC and Staff independently conducted health risk assessments which confirm that there are no other emissions from the project which will cause a public health impact, including cancer. (FDOC, pp. 2, 11; FSA, Vol.I, p. 226) The Commission could not approve any project which threatened the health of the residents of Bayview Hunters Point. Again, the evidence establishes that the SFEC project does nothing to adversely impact or add significantly to the existing picture in BVHP.

If Not SFEC, then What?

What would happen if the SFEC project is turned down on environmental justice or any other grounds? The No Project alternative analysis in the **ALTERNATIVES** section concludes that if this project is not constructed some other generation project will be necessary in order to satisfy PG&E's San Francisco Operating Criterion (SFOC) after 2001. PG&E's SFOC is not immutable however, because economic dispatch and physical changes are not static. There is

no evidence in the record to suggest any revision leading to a substantial reduction in the local generation needed to meet the reliability criterion. As it now stands, the SFOC protects only 40 percent of peak loads, which is supposed to keep vital functions operational.

If SFEC is turned down, who will provide the new generation lost when PG&E mothballs Hunters Point Units 2 and 3 due to air pollution control rules? The losing bidders in the BRPU auction are incapable of producing the licensing application and going through regulatory review in a time frame which would meet the terms of the CPUC auction.

PG&E on the other hand can return to the starting point of ER 90 and ER 92 as well as the BRPU, namely the repowering of Hunter Point Units 2 and 3. That repowering, as described in more detail in the **ALTERNATIVES** section, would likely entail either a single combustion turbine unit utilizing one of the existing steam turbines for 221 MW output or a larger 440 MW project using two combustion turbines and both existing steam turbines. The Commission's record of public comments contains a substantial number of complaints about PG&E's existing operations at Hunters Point and the desire to remove it so that the area can transition into a residential neighborhood. However, a possible repowering at Hunters Point powerplant might have equal or greater impacts than the SFEC project. Moreover, no known provision of the law would allow PG&E to use ratepayer money to provide the community benefit package offered by SFEC.

PG&E's other option to meet the SFOC is to retrofit Hunters Point Units 2 and 3 with relatively expensive pollution control equipment sufficient to allow continuing operations under BAAQMD's rules and the CPUC's Certificate of Public Convenience and Necessity. In all likelihood, these retrofits may not require a comprehensive public review process. The Commission's experience in such matters suggests that the retrofit would not be as environmentally clean or as efficient as the SFEC project from an air quality perspective, and would continue an environmental impact by using Bay water for once-through cooling. Thus, there could be "environmental justice" concerns arising in that regard in the future.

Similar Circumstances, Similar Treatment.

In 1992, the Commission reviewed an AFC license for a natural gas-fired cogeneration project at the C&H Sugar refinery in Crockett, Contra Costa County (92-AFC-1). The project is very similar in size and features (240 MW) to the SFEC project. It has an exhaust stack, similar emissions, and uses and stores similar chemicals for pollution control. Crockett residents are closer to the powerplant than in Bayview Hunters Point. The Crockett project was within the BAAQMD and resulted in a very similar Determination of Compliance by the BAAQMD in terms of air quality impacts and the absence of public health impacts. Neither the BAAQMD nor Staff required PM₁₀ offsets.

The Crockett project is very close to the residences of Crockett, and it engendered public concern and opposition from a segment of the community. Crockett is not a minority community, and "environmental justice" concerns *per se* did not arise. To assure that the benefit/burden ratio favored benefits to the community, the Crockett project included a package of community enhancement measures.

Community Benefits Package.

SFEC has voluntarily offered a community benefits package for Bayview Hunters Point of approximately \$13 million over the life of the project. These funds are to be disbursed using a community-based decisionmaking process. Prior to the evidentiary hearings, SFEC engaged in public discussions regarding the creation of this community benefits package and a community-based organization to guide disbursement of funds. The Commission notes that the Draft Lease between SFEC and the Port calls for SFEC to develop and implement a community benefits program⁷⁰.

⁷⁰ The Draft Port Lease, Section 37 (pp. 85 -86) provides in pertinent part:

For a period covering Operating Period Years 1 - 17, Tenant shall develop and implement programs and/or projects or amendments thereto to benefit the community located in the immediate vicinity of the Facility.... Tenant agrees to submit a budget for the plan equal to or greater than 1 % of the construction cost

The public discussions culminated on August 24, 1995, when SFEC entered into a Memorandum of Understanding (MOU) with The Bayview Hunters Point Clean Environment Coalition⁷¹. Pursuant to the MOU, SFEC will make annual contributions to a Community Enhancement Fund (Fund) to support programs, projects, and activities that focus on assisting the Bayview Hunters Point community residents, stimulating economic development in the community, and helping improve the quality of life for all community residents. Over the period of construction and first 17 years of the operational life of the project, SFEC will make annual contributions to the Fund, totalling \$13 million. The funds are to be disbursed using a community-based decisionmaking process embodied in the Community Enhancement Fund Advisory Board.⁷²

The Commission believes that SFEC's community benefit package provides tangible benefits directly to the community as a result of the development of the project. Such community benefit packages have been adopted in previous Commission Decisions including the Crockett Cogeneration Project (92-AFC-1) and the Sacramento Ethanol and Power Cogeneration Project (92-AFC-2). However, even though the MOU has established the Advisory Board, the Commission is concerned that those individuals and organizations that voiced concern about the project and may, therefore, be excluded from an open process to direct the use of the available funds. After all, the community benefits package should be there to enhance Bayview Hunters Point as a whole, not reward certain groups. Therefore, the Commission believes that Advisory Board membership should be open following certification and reflect the views of a cross-section of the community.

of the Facility. Port may from time to time identify a particular program or area for Tenant to expend the annual community benefit funds, and Tenant, to the extent it agrees with such program or project, shall, to the extent that such funds are available and not otherwise committed, expend the funds accordingly.

⁷¹ The Bayview Hunters Point Clean Environment Coalition is an open membership organization concerned about the general welfare of the Bayview Hunters Point community.

⁷² The MOU also creates a Community Health and Safety Advisory Committee (CHSAC) to review and advise SFEC concerning the project's health and safety programs.

In addition, the City and County of San Francisco ought to be engaged in the recognition that the SFEC benefits package is intended to be additive. The County should provide public assurances that it will not deduct funds or impose "take-backs", which would otherwise be directed to Bayview Hunters Point notwithstanding the private-source benefits package. No net benefit will accrue to Bayview Hunters Point if what is given with one hand is taken away by the other.

Since the SFEC community benefits package is voluntary and, by mutual bargaining, SFEC and the community have established a private organization to guide the disbursement of SFEC contributed funds, the Commission will not exercise oversight on this organization. However, the Commission's determination that the project benefits for this community outweigh the project burdens is conditioned upon the creation and equitable use of the community benefits package.

1964 FEDERAL CIVIL RIGHTS ACT

TITLE VI

Intervenors contend that the Commission's siting program is subject to Title VI of the 1964 Federal Civil Rights Act (Title VI or Act) and that an analysis and finding of no disparate racially discriminatory violation of that Act is required for certification of this project. Intervenors claim that the evidentiary record on Title VI compliance is deficient. Intervenors argue that the Commission's LORS compliance review and its public participation process do not provide a satisfactory framework to address Title VI requirements.

Title VI provides in pertinent part:

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, or be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. (42 U.S.C. § 2000d)

The federal Department of Energy has regulations implementing Title VI. The Energy Commission receives federal trust funds, as shown in the Commission's 1993 - 1994 budget. (Ex. 3) There is no evidence that the federal funds received by the Commission are used directly or indirectly in the facility licensing review program.

The Commission believes that Intervenors are testing two theories of Title VI. The first is that Title VI must be one of the project LORS which is routinely reviewed by the Staff and the Commission. The second is that the Commission, itself, would violate Title VI by approving the project.

The heart of the Commission's review process is CEQA. CEQA is essentially color-blind; but it is not impacts blind. The Commission focuses on impacts, their identification and mitigation. In twenty-years of siting history, the Commission has been able to mitigate potential impacts to insignificance, or the project has been rejected or withdrawn.

Public participation is a hallmark of the CEQA process. The Intervenors have been very active in this proceeding, attending workshops and informational hearings, and providing extensive and probative testimony, cross-examination and legal briefs. Their impact on this Decision has resulted in intense scrutiny of every issue before the Commission.

The effect of the public CEQA process is that the Commission has not needed to separately examine racially disparate impacts because it never allows a project to create significant impacts, either upon a community as a whole or a sub-group thereof. To be measurably disparate, an impact must necessarily first rise above a level of insignificance. In the context of CEQA, there are either significant impacts or *insignificant* impacts. The review of impacts is essentially made against objective standards.

The Commission is confident that the CEQA analysis will disclose impacts to any affected community, no matter whether that community is defined by geography, race, or economic circumstance. If a potential significant impact can be identified, then the relevant

inquiry becomes the severity of and methods available to mitigate the impact, **regardless** of whom or which community is adversely affected. There is no room under the regimen to value one affected segment less than another.

In this case, the land use, socioeconomic, air quality, and public health reviews, using objective facts, have found that the project will only produce insignificant impacts. The alternatives review, which included alternative sites in non-minority communities, showed that the insignificant *project* impacts would be common to different locations, but that in some other locations there would be other significant *site* impacts. For this reason, the Innes Avenue site, for example, was deleted.

Thus, the Commission does not believe that the routine inclusion of Title VI in the project LORS is appropriate. As it stands, the evidence in the record discloses that the project does not produce any significant impacts, let alone a disproportionate impact based on race.

With respect to the Intervenors' second assertion that the Commission, itself, would violate Title VI by approving the project, the Commission will limit its remarks to the following. If the question is whether the Commission is violating Title VI - an assertion the Commission strongly rejects - then the Commission should not be judging itself. No purpose is furthered by placing self-serving statements in this Decision. The record of the proceeding is more than sufficient to establish that the Commission did not, by intent or effect, base any element of its Decision to certify the project on race or any other discriminatory factor.

The Commission notes that supporters of the project within the minority community believe it represents the type of new development which will be beneficial to Bayview Hunters Point which, rather than interfering with the transition of the community, will actually benefit the community by investing there, providing a tax revenue base, creating some new jobs, and providing for a self-directed use of the economic benefits package.

FINDINGS AND CONCLUSIONS

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

1. The topic of environmental justice is an emerging area of environmental law and public policy.
2. Bayview Hunters Point is a community burdened by an industrial past which has left behind toxic contamination of ground and water and, to some degree, the residual air pollution from PG&E's existing powerplants. The record is uncontroverted that Bayview Hunters Point is the locale for a federal Superfund Site at the Hunters Point Naval Shipyard, a state superfund site, the waste water treatment plant, PG&E's powerplants, an animal rendering plant, and numerous other leaking or non-leaking storage tanks or disposal sites.
3. The proposed natural gas-fired cogeneration powerplant is different in its nature and in its residual effects from the facilities criticized the environmental justice literature.
4. The SFEC project will not cause any significant adverse impacts within the meaning of the California Environmental Quality Act.
5. The SFEC project will provide environmental, community, and economic benefits greater than any adverse effects arguably caused by its placement in the Bayview Hunters Point community.
6. This Decision on the SFEC project was formulated consistent with applicable provisions governing the Commission's energy facility planning and siting process, as established by Public Resources Code section 25500 *et seq.*, in combination with the California Environmental Quality Act (Public Resources Code section 21000 *et seq.*). These statutory provisions ensure that the results achieved were conducted in an open forum in which public participation is encouraged and fostered. Moreover, these provisions also ensure that the Decision reached considered information concerning alternative project locations, as well as all aspects relevant to any alleged impacts of the proposed project including any discriminatory effects upon the local community associated with its location.

7. The compliance with the applicable, laws, ordinances, regulations, and standards, the protection of public health and safety, the evaluation of local community impacts, and the public participation in the Commission's open siting process combine to provide an effective environmental justice review of the project.

CONDITIONS OF CERTIFICATION

JUS-1

The project owner shall submit to the San Francisco Port Commission (Port) the August 24, 1995 Memorandum of Understanding (MOU) with the Bayview Hunters Point Clean Environment Coalition (Coalition) for inclusion in Port Lease 7274.02. The terms, conditions, and provisions of the MOU related to the establishment of the Community Empowerment Fund, in part, shall be used to satisfy Section 37 "Community Benefits."

Verification: Prior to the Port acting upon Lease 7274.02, the project owner shall submit to the CPM and Coalition evidence that the terms, conditions, and provisions of the MOU have been included in the Lease.

Note: If the Port elects not to incorporate the provisions of the MOU into the Lease, then the following alternative conditions of certification shall become effective:

Alt. JUS-1

Pursuant to the August 24, 1995 Memorandum of Understanding (MOU) between the Bayview Hunters Point Clean Environment Coalition and San Francisco Energy Company (project owner), the project owner shall establish a Community Empowerment Fund (CEF) to support programs, projects, and activities that focus on empowering Community residents, stimulate economic development in the Community, and help improve the quality of life for Community residents of all ages and circumstances. During the construction and 30 years of operation of the project, the project owner shall contribute \$13 million to the CEF.

Upon the commencement of construction of the project, the project owner shall make its first annual contribution of \$250,000 to the CEF. As per the MOU, the contribution may be made in quarterly installments in January, April, July, and October as appropriate. Subsequent annual contributions shall be determined by the Port of San Francisco and the CEF Advisory Board and paid in quarterly installments as prescribed by the MOU.

Verification: Upon commencement of construction, the project owner shall present evidence to the CPM of each contribution in the Monthly Compliance Report following the month after each contribution is made, with a summary of such payments in the Annual Compliance Report.

JUS-2 The project owner shall provide legal assistance in amount not to exceed \$2,000 for preparation of a charter for the CEF to receive and distribute funds.

Verification: Upon the establishment of the CEF, the project owner shall notify the CPM, in writing, that the CEF has been established and may receive and distribute funds.

ALTERNATIVES

1. Introduction

The California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21100(b)(4)) and the Commission's siting regulations (Cal. Code Regs., tit. 20, § 1765) require an examination of alternatives to SFEC's proposal. Under these provisions, the analysis must consider alternatives to a project and a project's location that are (a) reasonable, (b) feasible, (c) attain the project objectives, and (d) focus on reducing or eliminating the project's potential significant adverse environmental impacts. (Cal. Code Regs., tit. 14, § 15126(d) and Cal. Code Regs., tit. 20, § 1765.) In addition, the analysis is to consider the "No Project" alternative. (Cal. Code Regs., tit. 14, §15126(d).)

The range of alternatives is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. CEQA states that an environmental document does not have to consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15125(d)(5); see, also *Residents Ad Hoc Stadium Committee v. Board of Trustees*, (1979) 89 Cal.App.3d 274.) However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (*City of Santee v. County of San Diego*, (1989) 214 Cal.App.3d 1438.)

Feasibility is a key criterion in the evaluation of alternatives, relating to the attainment of the underlying project objectives. The CEQA Guidelines define "feasible" as, "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors." (Cal. Code Regs., tit. 14, § 15364.)

The agency considering a project has substantial discretion in framing its discussion of an alternative and in judging an alternative's merits. (*City of Aurora v. Hunt*, (1984) 749 F.2d 1457, 1467.) It also is the agency's responsibility to determine when it has enough information to make an informed decision. (*Nat'l Indian Youth Council v. Andrus* (1980) 501 F.Supp. 649, 671.) Furthermore, once an agency has made a decision subject to the procedural requirements of CEQA or the National Environmental Protection Act (NEPA), the only role for a reviewing court is to ensure that the agency considered the environmental consequences. (*Strycker's Bay Neighborhood Council v. Karlen* (1980) 444 U.S. 223 [100 S.Ct. 497, 62 L.Ed.2d pp. 427, 433].)

The Commission's powerplant siting program is the certified equivalent of the Environmental Impact Report (EIR) process (Cal. Code Regs., tit. 14, § 1525(k).)

2. Summary of the Evidence

a. SFEC

SFEC presented Chapter 3 of the Application for Certification as evidence in support of its position that no reasonable alternative exists that is superior to the proposed project. In addition, SFEC offered its data responses and oral testimony regarding transmission line alternatives.

SFEC alternatives analytical process was partly derived by its own initial search for a candidate site and is shown in a flow chart. (Ex. 9.) SFEC developed the definition of project objectives from the Commission's ER 92, the California Public Utilities Commission (CPUC), Biennial Resource Plan Update (BRPU), Pacific Gas & Electric's (PG&E) Request for Bids and San Francisco Operating Criterion (SFOC). SFEC's project objectives are:

- Add 221 MW of new generating capacity;
- Meet PG&E's SFOC, by interconnecting transmission at one of seven PG&E-specified substations at or north of the H. Martin substation;
- Be a Qualifying Facility (QF) pursuant to the federal Public Utilities Regulatory Policies Act (PURPA);
- Be on-line by June 1, 1997; and
- Achieve site control within 180 days of winning bid announcement and not use utility property. (Ex. 9.)

SFEC conducted a review of the San Francisco Peninsula for feasible sites, taking into account the location of PG&E's specified substations, the amount of available capacity at each substation, the existing transmission access to each substation, existing gas and water pipelines, potential steam users, and any known environmental fatal flaws. (7/17/95⁷³ RT 11:10-16.)

SFEC initially identified seven sites which could potentially accommodate the project: Cow Palace; City Asphalt Plant; San Francisco Thermal Ventures; San Francisco Airport; Potrero; Innes Avenue; and the Port site. After further review, SFEC concluded that 5 of these sites possessed some infeasibility which prevented them from achieving the project's objectives. (RT 12:5-11.)

Consequently, the undertook a site-specific environmental review of the Innes Avenue site and the Cargo Way Port site. (RT 12:12-14.) SFEC concluded that the two candidate sites would not cause any significant adverse environmental impacts and submitted them in the AFC. (RT 13:15-22.)

For the purpose of the regulatory CEQA review of alternatives, SFEC also undertook a comparative review of the repowering of PG&E's Hunters Point Units Nos. 2 and 3, and

⁷³ Unless otherwise noted, all transcript references are to 7/17/95.

concluded that the repowering would not be superior to the proposed project because it would put in place a less efficient and more costly utility infrastructure and would cause more environmental impacts from higher emission rates, once-through Bay water cooling, and greater fuel use. (RT 13:23-14:21.)

SFEC also conducted its own No Project alternative analysis, assuming no proposed project and no PG&E repowering. It concluded that the No Project alternative would not create the economic benefits intended by the ER 90 and ER 92/BRPU process; would not meet the SFOC; and would institutionalize an inefficient and more environmentally impacting infrastructure. (RT 15:3-24.)

SFEC examined an alternate configuration of the project, using two smaller facilities producing a total of 221 MW. However, it found that two smaller projects were financially infeasible and would likely increase the total environmental impacts by occupying more total space, requiring two stacks and two buildings, and consuming more fuel. In short, a smaller, multiple facility configuration would not reduce or eliminate any potential impacts of the proposed project. (RT 16:1-8.)

Lastly, SFEC examined alternative generation technologies and non-generation alternatives. SFEC considered commercially available technologies from coal to gas to renewables concluding that, other than gas, there were environmental or land use constraints which meant that alternative technologies were not superior to the proposed project. SFEC also reviewed small scale distributive generation (SSDG) and, referring to the Commission-developed *Utility Supply Option Characterizations* for ER 94, concluded that SSDG was not among the final supply options for (generation) PG&E, due mainly to cost-ineffectiveness. (9/12/95 Weatherwax/Wood, p. 37.)

Non-generation alternatives which were examined included additional demand-side management (conservation) measures and new transmission alternatives. Although Public Resources Code section 25305(c) specifically precludes consideration of additional conservation

as an alternative to a specific project, SFEC nonetheless reviewed the conservation that had been estimated in ER 92.⁷⁴ SFEC concluded that since its bid price was so low, any marginally more costly conservation measures would be rendered less likely. (RT 16:18-23; AFC 3-132-133.)

New transmission alternatives were also reviewed. SFEC concluded that as a matter of definition, new transmission would not meet the SFOC since the criterion requires local generating facilities, not transmission facilities. In oral testimony, SFEC's witness testified that transmitting electricity over substantial distances, from either the north or south of PG&E's system, would require from 21 to 34 MW more generation from the PG&E system, with greater associated emissions and fuel use, to compensate for transmission line losses. (RT 8:4-7; Wood, p. 2.) SFEC's witness also estimated that the installation of new overhead and underground transmission plus reactive power features would cost more than \$200 million. (7/17/95 Wood, p. 5.) Additionally, there would be environmental impacts from new transmission lines up the Peninsula. Thus, the SFEC claims that new transmission would not be a feasible alternative to the proposed project.

Commission Staff

To perform its Alternatives analysis, the Staff used the methodology summarized below and shown in ALTERNATIVES FIGURE 1.

Staff's process included:

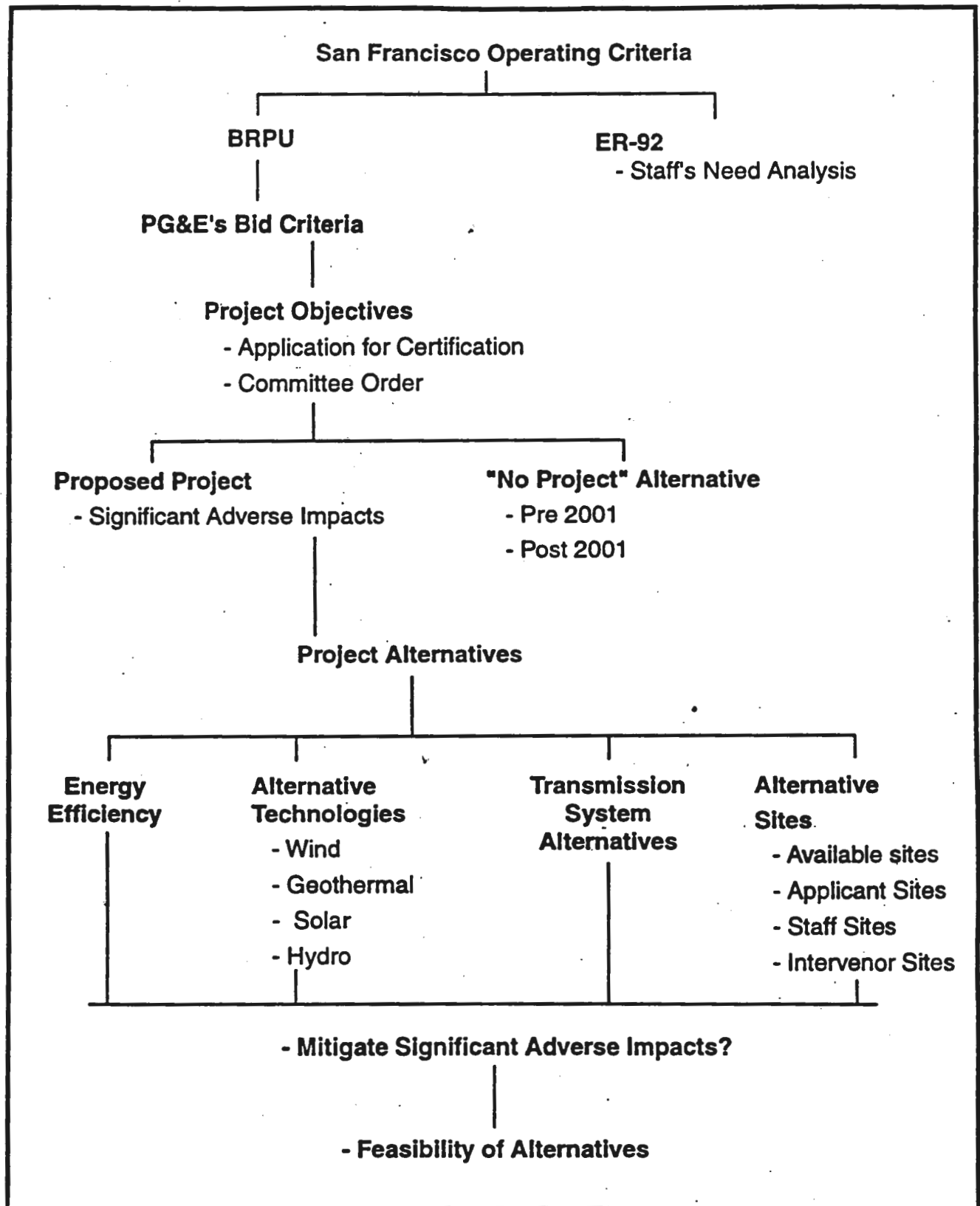
1. Identify the basic objectives of the project. - The project objectives were based on SFEC's filings and Committee orders.
2. Evaluate the adverse and beneficial impacts of not constructing the project (the "No Project" alternative).

⁷⁴ ER 92 estimated that more than two-thirds of the total "need" for electricity would be met by conservation measures, and to add conservatism the CPUC allowed only 25 percent of the remaining "need" to be put to bid in the utility auctions.

3. Identify and evaluate alternatives to project. - The principal project alternatives examined that do not require the construction of a natural gas-fired facility in San Francisco are increased energy efficiency (or demand side management), construction of alternative technologies (geothermal, wind or solar), or construction of additional transmission lines.
4. Identify and evaluate alternative locations or sites. - The first step of the alternative site evaluation is a screening to identify potential sites assuming there were unmitigated, significant adverse impacts associated with the proposed project. The second step is a comparison of the alternative sites with the proposed project to determine if they are able to resolve any remaining unmitigated, significant adverse impacts. The third step is to review those sites which do resolve remaining unmitigated, significant adverse impacts and determine their feasibility.

Staff's preliminary analysis began with the identification of basic objectives of the project. In its AFC, SFEC set out eight points which it defined as the basic elements of their project. These elements addressed the SFOC, the BRPU process and key bid specifications from PG&E's 1993 Request for QF Electric Generation Resources. (AFC p. 3, 123-127.)

ALTERNATIVES FIGURE 1
Alternatives Evaluation Methodology



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, JUNE 1995.

Staff relied upon the COMMITTEE ORDER RE ALTERNATIVES REVIEW (January 6, 1995) which considered ER 92, the CPUC BRPU competitive bid process decision, and PG&E's bid specifications to conclude that the two basic objectives of the project are:

1. to add approximately 221 MW of new generating capacity; and
2. to locate such new generating capacity and transmit such capacity to the PG&E service area so as to meet PG&E's SFOC.⁷⁵

The purpose of Staff's analysis of the No Project alternative is to determine if any impacts, either positive or negative, would occur if SFEC did not construct the proposed project. Staff's primary focus was on the impact of the No Project alternative upon the San Francisco electric system and the SFOC. Staff determined that the No Project alternative had different impacts before and after PG&E's intended placement of Hunters Point Units Nos. 2 and 3 into long term reserve beginning in 2001. (RT 45:10-21.)

⁷⁵ Pacific Gas & Electric Company developed its SFOC:

"... to protect the downtown area from a sustained power outage due to multiple transmission line failures along or near the San Francisco Airport or a major system disturbance outside the San Francisco and peninsula area. The criterion requires that at least 50 percent of the total city load be supplied from generation located within San Francisco during the daytime hours and on Saturdays.

"In the event of a total loss of transmission supply from the rest of the PG&E system, the San Francisco Operating Criterion is designed to supply the network load entirely from local generation during heavy load hours. This is possible because the remaining 50% of the City load is served from radial distribution circuits equipped with underfrequency relays. Should all the transmission service to the City be interrupted or should a major system disturbance occur outside the City, the underfrequency relays would interrupt service to about 50 percent of the overall city load. The on-line generation within the City would continue to serve the downtown area and protect against city-wide blackouts. Other available generation in the City, such as fast starting combustion turbines, would then be started to restore the interrupted load." (Pacific Gas and Electric Company's ER-90 Phase Resource Plan Report for the Biennial Resource Plan Update in Compliance with Ordering Paragraph No. 3 of Decision 91-06-022, Appendix A Page 3.)

Prior to 2001, the No Project alternative has no impact on the San Francisco electric system because there are sufficient generation resources in San Francisco. However, beginning in 2001, PG&E will not have sufficient resources to meet the SFOC unless the proposed project or an alternative is constructed. (RT 45:22-45:5.) Staff did not examine the economics of the No Project alternative to determine any economic detriment from not having the proposed project provide electricity to PG&E. (RT 60:9-14.)

In response to Staff Data Requests, PG&E responded that it would consider aggressive demand-side management, transmission upgrades or other new local generation in order to meet the SFOC beginning in 2001. The Staff witness believed that since planning and development activities had not begun on any of these alternatives, they should be considered speculative. Additionally, any other new local generation would have project-specific as well as site-specific impacts similar to those of the proposed project. (RT 46:5-16.)

Staff concluded that the proposed project or some other project must be constructed to maintain the current SFOC. (RT 46:17-19.) Moreover, if the potential impacts of the proposed project were mitigated to a level of insignificance, then the No Project alternative, including transmission system upgrades and other new local generation, would not eliminate or reduce project impacts. (RT 46:20-25.)

With regard to demand-side management, Staff stated that its legal ability to consider conservation as an alternative to the project is limited by Public Resources Code section 25305(c). Staff noted that ER 92 took into account expected demand-side management and nonetheless concluded that repowering Hunters Point Units Nos. 2 and 3 was a cost-effective addition to PG&E's system. (RT 47:1-14.)

As to transmission system upgrades, Staff stated the time required to plan and permit such facilities, plus potential land use, biological and visual impacts and public concerns over electromagnetic fields, meant any transmission upgrade option would not lessen any project impacts.

Staff also reviewed four alternate technologies: geothermal, solar, hydroelectric, and wind. Combustion technologies such as biomass and municipal solid waste were eliminated due to relatively higher levels of emissions. The lack of large vacant tracts of land in San Francisco made solar and wind infeasible. Remote locations necessary for geothermal and hydroelectric made these technologies infeasible because of the constraints of the SFOC. (RT 48:14-49:1.)

During additional hearings on September 12, 1995 to address distributive generation alternatives, Staff also reviewed battery, fuel cell, and small-scale combustion turbine alternatives. Staff concluded that since batteries require recharging they would not be able to meet the SFOC. Utility scale fuel cells are not commercially available. Multiple small-scale cogeneration or combined cycle facilities, when dispersed, require a significant aggregate land commitment, duplicate most of the infrastructure of a larger facility, and cost significantly more on a per kW basis. (9/12/95 Woo/Davis, pp. 3 & 4.)

Staff reviewed alternative sites for the project. Staff identified over 150 sites throughout the northern peninsula in its initial level of alternative site identification. (RT 50:16-19.) Using screening factors, such as site size, land use compatibility, and reduction of potential impacts, Staff narrowed the site alternatives to 39. (RT 50:20-51:1.) Minimum site size was considered to be 3 acres. (RT 51:2-6.) Land use compatibility focused on identified industrial areas, but also included public districts, as well as areas identified as residential-commercial and commercial-manufacturing. However, the latter two districts were eliminated from consideration due to population densities since an alternative location would only shift, not lessen or eliminate, a potential project impact. (RT 52:4-24.) The Innes Avenue site was used as the base case in the *Preliminary Staff Assessment*. If any alternate site were inferior to Innes Avenue, it would necessarily be inferior to the Port site. (RT 51:15-22.) This screening exercise included San Francisco and the cities of Brisbane, Daly City and South San Francisco. The San Francisco Airport area was also considered. (RT 53:7-11.)

The thirty-nine sites which remained after the initial screening were examined in the field; this reduced the number of possible alternative sites to eleven. (RT 53:12-20.) For Staff's

Final Assessment, these eleven sites were combined with SFEC's original seven alternative sites. Staff technical specialists then performed a comparative review of the remaining sites in ten separate environment-oriented subject areas. (RT 54:7-55:4.) Staff reviewed site-specific impacts as differentiated from project-specific impacts, so that impacts were evaluated based on the unique characteristics of the alternative sites. (RT 55:5-56:23.) Since all sites would have the same PM_{10} emissions that Staff identified as the only significant impact at the Port site, Staff concluded no alternative site could be deemed a superior alternative. (RT 56:19-57:1.) Each comparative analysis was reduced to a matrix, which showed that no alternative site reduces or avoids any potential impact which may arise from locating the proposed project at the Port site. (RT 57:10-16.)

In addition, based on Committee directives, the Staff also reviewed the potential use of PG&E's Hunters Point site, even though use of the utility site was expressly prohibited in the BRPU. Redevelopment of PG&E's Hunters Point site to accommodate the proposed project would be infeasible due to insufficient space, disruption of operations of Unit No. 4, and potential non-compliance with the SFOC during the two-year period of construction. (RT 58:13-21.)

b. Intervenors

Intervenors presented citizen witness Jose Lucero. Mr. Lucero's written testimony is restated in pertinent part:

It is a harsh reality that residents of low income neighborhoods or neighborhoods where there is a high percentage of people of color are often victims of so called progress. We now have San Francisco Energy Company (SFEC), a multi-billion dollar, multi-national energy company, perpetuating and contributing to a discriminatory practice, and that is to put another powerplant in a poor area where there already exists other powerplants... .

I was one of the local residents who attended a tour conducted by the CEC of different sites being considered as alternative sites. Before I went on the tour I thought, 'build a plant any place but in the Bayview Hunters Point community

where I live.' However, as we went through the different areas I kept thinking that no matter where the plant is constructed in San Francisco, the additional air pollution from the plant would be the same (approximately 300 tons per year). Still had to remind myself that if the SFEC powerplant is constructed in the Bayview Hunters Point community, the cumulative effects resulting from years of dangerous emissions would further devastate this community, would further increase health risks and would decrease property values more than they are now... .

I believe that if the SFEC powerplant is a necessary evil that must be built, then it should be built away from populated areas. Perhaps it should be sited in a rural community where the population is not as dense as it is in the inner city. I am still not convinced there is a need for a new powerplant. I say that because in the PSA [Preliminary Staff Assessment], PG&E states that they will put Hunters Point Units Nos. 2 and 3 into long-term reserve whether or not the new the SFEC plant is built. My question is, if PG&E plans to put these two units into reserve, then it appears that the new powerplant may not be 'improving' the environment and may not even be needed. (Lucero, pp. 1-3; see, 7/18/95 RT 41:7-45:5.)

In oral testimony, Mr. Lucero pointed out that he lives within half a mile of the Port site, and the project will obstruct his view of the Bay Bridge and thus, he thinks, lower his property value. (7/18/95 RT 42:22-43:2.)

3. Commission Discussion.

The San Francisco Energy Company's project is the first electric generation proposal resulting from the PUC BRPU competitive bid process to come before the Commission for licensing. As such, the Commission recognizes the unique place this case has in applying CEQA in the midst of discussions surrounding the BRPU, possible electric industry deregulation, and a future competitive electricity marketplace.

Events in this proceeding to date confirm the Committee's expectation that or the Energy Commission, the CPUC and others begin to contemplate the early halting steps toward implementing some aspects of the competitive marketplace through the ER 92 and the BRPU there were questions and issues raised about the interaction of the alternatives review, which has

emerged by court decisions to dominate the CEQA process, with a bidding process which selects "winners" primarily for their ratepayer benefit and does not equally value environmental, social and economic goals.

Notwithstanding this larger context, the Commission has a specific case before it which, by its controversial nature, has forced consideration of difficult issues. The Committee put these issues on the table early in this proceeding scope of an alternatives review necessary in meeting CEQA's requirements.

Some have argued that the combined ER "need" determination and the winning BRPU bid are conclusive as to virtually all issues of licensing, making final certification essentially foregone but for some fine-tuning of necessary mitigation. Under this view, CEQA's typical alternatives review is subsumed by the deemed "needed" determination and the BRPU bid process. Thus, evaluation of site and project alternatives (as well as the "No-Project" alternative) could be so restricted as to be effectively eliminated.

On the other hand, those subject to the potential impacts of the project argue that the ER's economic "need" determination and the criteria of the BRPU should have no limiting effect on a CEQA-driven alternatives analysis since the former processes considered primarily economic, not environmental, issues and members of the affected public had no notice and opportunity to be heard on the localized impacts caused by the ER and BRPU pronouncements.

The appropriate role for the Commission is to make its best interpretation of the law. The Commission believes that within the legal hierarchy of matters which are controlling in this case, the Legislatively-enacted statutes of the State of California take precedence over administrative decisions, administrative policies, staff policy papers, and party briefs. In areas of uncertainty or disagreement, the Commission will look first to the statutory provisions of the Warren-Alquist Act and CEQA to chart the course for the appropriate review of this project.

The ER and BRPU, as administrative agency actions, are subject to the statutory provisions of the CEQA with respect to the alternatives review. Neither the ER nor the BRPU have purported to limit or otherwise control the comprehensive implementation of the requirements of CEQA. The Commission also notes that neither the ER nor the BRPU purported to include a comprehensive environmental review in their findings and certainly did not claim to satisfy a site-specific environmental impact review. However, the ER and BRPU do give the winning bidder a "deemed needed" finding, which is one of several essential findings required for certification (licensing). But that, in itself, is no guarantee of obtaining all the permits and licenses required for construction and operation.

Similarly, the Commission finds no express language that AB 1884⁷⁶ cleared a path around CEQA's alternatives review requirement for bid winners, nor an implication that our lead agency responsibilities no longer include consideration of alternatives in the licensing process. Indeed, nothing about the current law or energy policies suggests that an "economic winner" should not also face the question of whether it is an "environmental winner" too.

Alternatives Review under CEQA

The provisions of CEQA are clear - if, after mitigation, there are no significant impacts from a proposed project, then there is no legal compulsion to examine project alternatives. (Pub. Resources Code, § 21080.5; Cal. Code Regs., tit. 20, § 1755(c)(1).)

However, the provisions of CEQA authorizing the Commission's certified regulatory program require consideration of mitigation measures and alternatives to minimize any significant environmental impacts. (Pub. Resources Code, § 2080.5 (d)(3).) The Commission's regulations, which implement the certified regulatory program, require a review of project

⁷⁶ AB 1884 amended or enacted Public Resources Code sections 25523, 25523.5 and 25540.6.

alternatives to reduce or eliminate project impacts. (Cal. Code Regs., tit. 20, §§ 1741(b)(2), 1742(b), 1742.5(a), 1755(c & d).)

The CEQA Guidelines require that the alternatives review "(d)escribe a range of reasonable alternatives to the project, or the location of the project, which could feasibly attain the *basic objectives of the project*, and evaluate the comparative merits of the alternatives." (Cal. Code Regs., tit. 14, § 15126.) (Emphasis added).

Furthermore, the range of alternatives:

... is governed by [the] "rule of reason" that requires the [environmental document] to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision-making and informed public participation. An [environmental document] need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15125 (d)(5).)

If the range of alternatives is defined too narrowly, the analysis may be inadequate. (*City of Santee v. County of San Diego* (4th Dist. 1989) 214 Cal.App. 3d 1438.) Moreover, "feasible" is a key criterion in the evaluation of alternatives, relating to the attainment of the underlying project objectives. The CEQA Guidelines define "feasible" as, "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors." (Cal. Code Regs., tit. 14, § 15364.)

The Project's Basic Objectives

At this point, the Commission is the arbiter of the definition of the "basic objectives of the project" for the purpose of the alternatives review. Defining those objectives too narrowly could result in the exclusion of potentially feasible alternatives. Conversely, too broad a definition of the project objectives fosters consideration of fundamentally infeasible alternatives.

In defining the basic project objectives, the Commission need not rely solely upon SFEC's project definition but may utilize any relevant information. In this respect, the Commission has considered the AFC, the ER 92, the BRPU Decision, and PG&E's bid specifications to conclude that the basic objectives of the project are:

- to add approximately 221 MW of new generating capacity, and
- to locate such new generating capacity and transmit such capacity to the PG&E service area so as to meet PG&E's SFOC.

The Commission recognizes that there are subsidiary objectives such as the cogeneration status of the facility, site control, the time for the construction and operation of the facility, and the low price of the electricity to be sold to PG&E. Consequently, the Commission anticipates discussion of these and perhaps other subsidiary objectives, but believes that the two enumerated basic project objectives should guide initial inclusion of any alternative in the review. Whether any objective is met is a question of fact which was adjudicated at the evidentiary hearings. (COMMITTEE ORDER RE ALTERNATIVES REVIEW, 1/6/95, pp. 8-9.)

The Intervenor takes the Commission to task for use of the SFOC as one of the defining objectives of the project for its limiting effect on the alternatives review:

Looking at this proceeding, the fundamental, unchangeable parameters include adherence to PG&E's SFOC, and the related narrowness and rigidity of criteria for evaluating the "no project" alternative.

The Commission has uncritically accepted the SFOC in whatever form is currently proclaimed by PG&E, as a necessary parameter for energy planning in San Francisco. This PG&E rule of thumb is developed, and changed, without any public notice or input, as well as without any CEQA review or other regulatory oversight or review. It is whatever PG&E says it is, and changes at PG&E's pleasure. (Intervenor's Br., pp. 11-12.)

The entire structuring of this proceeding, both in its need determination and in its CEQA analysis, has been based upon the assumption that PG&E's grid has

certain operating requirements that must be maintained. (Intervenors' Reply Br., p. 19.)

Intervenors offer no substantive evidence that the SFOC is inappropriate as PG&E's operating guideline. Thus, the Commission will not disregard PG&E's SFOC as a long-established and proven practice to provide reliable electricity to San Francisco due to the non-substantive criticism offered by the Intervenors.

The SFOC is not an operating policy created by PG&E outside of public scrutiny as Intervenors intimate. The earlier and revised SFOCs could be found in periodic PG&E filings before the CPUC regarding the reasonableness of its operations. In a general sense, the CPUC reviews such filings and determines what costs have reasonably been incurred by the utilities and thus chargeable to ratepayers. If the SFOC caused PG&E to unreasonably spend ratepayer dollars for system reliability, for San Francisco generation, and for operating facilities to be able to meet an upset or emergency contingency, then the CPUC presumably would disallow that expense. The CPUC actions in identifying the Hunters Point Identifiable Deferrable Resource (IDR) and not staying the BRPU bid process demonstrate its consideration and approval of the SFOC. The CPUC processes in such matters, including the reasonableness review, are open to the public.

The Commission in ER 90 and ER 92 was cognizant of and reasonably took into account the SFOC in determining that repowering PG&E Hunters Point Units Nos. 2 and 3 was needed and represented a socially least cost option. All of the ER processes were open and accessible to the public. The fact that the SFOC is arcane and of little day-to-day interest to most of the public does not mean that decisions and policies about it were not arrived at openly and based upon thoughtful analysis.

The Commission therefore, finds that use of the SFOC⁷⁷ is an appropriate objective of the proposed project.

No Project Alternative

SFEC argued early in the proceeding that the determinations in the ER and BRPU that a given generation resource planning action "needs" to be taken fundamentally means that taking no action (i.e., the "No Project alternative") is not an option. At issue is the question of whether the project, after a thorough evaluation, has significant impacts which can or cannot be reduced or eliminated. Included among the requirements of CEQA is an analysis of the beneficial and negative effects, if any, of not building the project. But this "No Project" analysis is to consider environmental factors, whereas the ER and BRPU considered mainly economic factors. Consequently, the review of the "No Project alternative" must be conducted to comply with CEQA.

SFEC contends that the No Project alternative is infeasible from 1997 because it does not provide the project's economic benefits identified in ER 92 and the BRPU, which are integral to SFEC's broader definition of the objectives of the project. SFEC also asserts that the No Project alternative does not provide the reliability benefits of the project after 2001 when Hunters Point Units Nos. 2 and 3 are placed in long term reserve.

Using the narrower definition of the project objectives in the COMMITTEE ORDER RE ALTERNATIVES REVIEW, Staff disregarded any economic benefits and determined that the

⁷⁷ Even though the Commission has adherence to the SFOC as one of the basic objectives of the project, notes accepted that the record shows that the SFOC has been revised in response to transmission system upgrades by PG&E in 1991. These revisions fundamentally allow economic dispatch of San Francisco generation resources during non-peak loads.

Notwithstanding the prescription in the SFOC for "minimum levels of local steam generation," the Committee allowed, for purposes of a comprehensive alternatives review, the parties to conduct a limited review of transmission line upgrades to ascertain whether such upgrades, alone or in combination with local generation, are capable of satisfying the fundamental reliability goal of the SFOC.

No Project alternative was feasible from initial operation in 1997 until 2001 because Hunters Point Units Nos. 2 and 3 would also be available to meet PG&E's reliability needs. After 2001, the No Project alternative is infeasible due to the placement of Hunters Points Units Nos. 2 and 3 in long-term reserve.

The Intervenors contend that PG&E's 1991 transmission upgrades leading to the revision of the SFOC render the No Project alternative feasible until 2013, when PG&E loads exceed 900 MW. (Ex. 10.)

In their Brief, the Intervenors presented a arithmetic exercise, starting from the total capacity of peninsula transmission at 1030 MW and a San Francisco load of 900 MW. Stating that PG&E's principal reliability concern is an earthquake, Intervenors subtract the loss of a major transmission line from the peninsula capacity; thus leaves 730 MW. Then, based upon transformer stress, that capacity would be reduced to 570 MW after 30 minutes.

PG&E would have 578 MW of local, San Francisco generation to bring on line in addition to the reduced transmission capacity. The generating capacity consists of 435 MW from PG&E's Hunters Point, Units Nos. 2, 3 and 4 at full capacity and the diesel units, plus 363 MW from Potrero. Intervenors then subtract Hunters Point Units Nos. 2 and 3 (220 MW) leaving the 578 MW referred to above. Intervenors also subtract the capacity of the largest remaining unit, that being Potrero Unit No. 3 (207 MW),⁷⁸ as a contingency for its outage, leaving 371 MW of San Francisco generation.

Lastly, the remaining 570 MW of Peninsula transmission capacity is added to 371 MW of local, San Francisco generating capacity for a total of 941 MW to meet 900 MW of San Francisco load. (Intervenor Br., 19-20.)

⁷⁸ Hunters Point Unit 4 is 163 MW.

Intervenors state that with the above transmission upgrades, the SFOC would be violated only a few hours of the day during the few days of the year when San Francisco loads were at their peak. Otherwise, prior to 2001, the combined capacity of Hunters Point Units No. 4 and Potrero Unit No. 3 satisfies the SFOC 95 percent of the time. (Intervenors Br., p. 20.) Thus, since the underlying purpose of the project is to provide electricity to San Francisco in case of certain contingencies, Intervenors suggest that the limited technical violation of the SFOC under the No Project alternative does not warrant rejection of the No Project alternative. (Intervenors Br., p. 21.)

The Intervenors' direct testimony on Alternatives did not address transmission issues related to the SFOC. However, in the Demand Conformance aspects of the hearings, Intervenors subpoenaed PG&E to testify by presenting its answers to Data Requests, dated April 28, 1995, May 25, 1995, and June 30, 1995.

Therefore, PG&E personnel testified:

If the San Francisco Energy Project does not come on-line starting in 2001, there would not be sufficient local generation to meet the existing [revised] SFOC. To resolve this issue, PG&E would investigate and evaluate alternatives to the San Francisco Energy project which would enable PG&E to continue to reliably supply electric service to San Francisco and the peninsula beyond December 31, 2000. (May 24, 1995 PG&E Data Response, p. 6; Emphasis added.)

In the June 30, 1995, responses to the Intervenors' Data Requests, PG&E addressed compliance with the SFOC taking into account its 1991 transmission upgrades:

Intervenor Question 1: [In pertinent part]... Why may not one merely assume that since an additional 260 MW has been provided to San Francisco through a [1991] transmission upgrade that the initial identified need [ER 90 & ER 92] has been satisfied? ...

PG&E Answer: [In part]... Only comparing megawatts of transmission added with megawatts of generation added does not consider the reliability differences of these two types of resources. The reliability of the combination would need

to be considered and analyzed to compare one proposed plan with another. For example, PG&E in response to ALT-PG&E 19d [another data response] stated installing additional 230 kV or 115 Kv transmission capability to supply San Francisco and the peninsula areas would allow lowering generation required to protect against transmission limitations. However, such a reduction may require exposing additional downtown networks to under-frequency load shedding.

The present SFOC reflects the additional transmission capability installed in 1991. In addition, the level of required generation specified by the SFOC would be able to supply eight of the ten downtown distribution networks should San Francisco become islanded from the rest of the PG&E transmission system. A controlled separation scheme at Martin Substation will island San Francisco customers and local generation in the event of a major system disruption which causes a substantial decline in system frequency. This scheme will automatically separate San Francisco load and generation north of Martin Substation from the system if system frequency declines to 58.3 Hz and the power flow is towards San Mateo. With this decline in frequency, radial San Francisco distribution loads and two networks (approximately 60 percent of total San Francisco peak load) will be interrupted by under-frequency load shedding. The remaining networks are not subject to under-frequency load shedding and would continue to be supplied by generation located in San Francisco. (pp. 2-3.)

Effectively, these PG&E responses confirm a conclusion opposite from that argued by the Intervenor. The 1991 transmission upgrades are not sufficient to meet the SFOC and provide reliable electric service to San Francisco. In other words, on a physical need basis, in PG&E's view the No Project alternative is not feasible after Hunters Point Units Nos. 2 and 3 are put in long term reserve at the end of 2000.

An additional point needs to be made based upon PG&E's foregoing answer. It is inaccurate to believe that the SFOC protects all or even a majority of San Francisco's peak loads. However, PG&E's answer to the Intervenor's Data Request quoted above shows that, if San Francisco is separated from the rest of PG&E's transmission system, 60 percent of peak loads will be interrupted. That means *loss* of electric power to those PG&E customers.

Expressed inversely, only 40 percent of peak loads will remain uninterrupted by virtue of the generation located in San Francisco. Local generation to maintain 40 percent of peak

loads does not seem unconscionably high to the Commission. The SFOC should be regarded as a form of electricity insurance for San Francisco. The so-called "coverage" of this insurance protects only 40 - 50 percent of peak loads.

Like other forms of insurance, "excessive" coverage means spending more than the benefit purchased. However, insufficient "coverage" means unprotected losses. Certainly, many of those in the interrupted 60 percent could argue that there should be more local generation to reduce the number of customers losing power. There are many contingencies which the SFOC must contemplate. While earthquake and aircraft accidents are among the most obvious which would cause partial or total transmission disruptions along the peninsula corridor, there are other events which can take place on the western states interconnected transmission grid which can have an instantaneous local effect from an event originating hundreds of miles away.

Observations on the No Project Alternative and Economic Need

Unlike prior ERs, *ER 90* and *ER 92* are founded on the principle of "economic" need. Previously, the Commission determined need on the basis of aggregating new demand, powerplant retirements, and expiring interstate power contracts to find total need followed by subtracting conservation, anticipated power contracts, and repowering to provide a *net* need number. This process relied upon the existence of a "physical" need to justify the construction of new facilities.

The Commission's success in identifying and filling the "physical" need within the State of California and the emergence of private power developers responding to federal energy policy initiatives led to the introduction of the concept of "economic" need. In its infancy which occurred during an era of lucrative Interim Standard Offers, "economic" need was introduced to protect consumer interests by requiring that ratepayers be economically indifferent whether electricity was produced by a utility or by a private developer.

Once un-economic private electricity development was discouraged, the next incarnation of "economic" need was intended to advance consumer interests by suggesting that a ratepayer *benefit* could result if the utility's average cost to produce or purchase electricity was reduced. Thus emerged the concept of the socially least cost option which introduced a measure of competition between the utilities and the private electricity developers to reduce the utility's system is average cost of electricity. This is the "economic" need of ER 92.

However, in this ongoing siting proceeding, the public perception of the benefits of "economic" need is something entirely different depending on the perspective of the viewer. Virtually all members of the Bayview Hunters Point community who have voiced project opposition believe that their community is being asked to shoulder a public burden in order to create a private benefit. Put more candidly, they say, Hunters Point gets the pollution, the hazardous chemicals, and the smoke stack while SFEC gets the profits from electricity sales and hypothetically some or all of PG&E's customers benefit. None seem to believe that there will be a direct economic benefit to them; if somebody's rates do go down, it will be others, not the average residential consumer.

The effect upon a CEQA alternatives review - particularly the No Project alternative - from "physical" need to "economic" need is major. "Physical" need means that without the project, electric service would be compromised. "Economic" need represents the principle that the power system can be operated at a lower overall cost with, rather than without, the project. The contrast is striking -- a project may not be needed (physically) to "keep the lights on," yet it would nonetheless lower total system costs.

Having won the competitive bid, an electricity project for private gain is conceptually no different from a mall project, hotel, office complex, or fast food restaurant. These types of projects provide a public benefit, some of which are the new services that are not otherwise available, and others by introducing competition into the marketplace, which produces a public benefit.

A problem arises if an imprimatur of public benefit is given to what appears to be the private benefit of "economic" need. A project required for system reliability is needed for the "public convenience and necessity" at a definable time and often a specific place. Under CEQA, while that does not obviate the requirement for a No Project alternative review, it does mean that such a review takes place in light of a compelling reality that something must be done to achieve the project's objectives or there will be a significant public detriment, namely degradation of electric service below a level which society as a whole has established. That level of service has been established for health and safety and furtherance of a sound economy, all for the greater public good.

On the other hand, a project founded solely on "economic" need may be publicly beneficial, but it is not compelling. Thus, there will be no comparable detriment to the greater public from the No Project alternative. Such projects are appropriately characterized as discretionary.

There is a clear dichotomy between the CEQA alternatives analysis for needed and discretionary projects. If privately developed powerplants are foremost for private gain, and not public convenience and necessity, then a defensible CEQA alternatives analysis should not rely on economic benefit as a primary project objective.

For this reason, the COMMITTEE ORDER RE ALTERNATIVES REVIEW discussing the interrelationship of CEQA's alternatives review and the economic need principles of *ER 92* and the BRPU stated:

Included among the requirements of CEQA is an analysis of the effect of not building the project. But this "no project" analysis is to consider the environmental factors, whereas the ER and BRPU considered mainly economic factors.

SFEC also appears to have anticipated a potential problem in sole reliance on "economic" need in the CEQA analysis and has provided substantiation of "physical" need for the project for all but 1997 to 2001.

The project is a hybrid of economic need and physical need. The evidence in the record persuasively establishes that the project assumes a reliability role in San Francisco after 2000 when the PG&E's Hunters Point Units 2 and 3 are effectively retired due to air quality limitations.

The CPUC appears to have also acknowledged the physical need aspect of the project in denying PG&E's 1994 bid to stay the BRPU award. Instead of relying on the economic benefits of the project, the CPUC noted the unique and compelling circumstances of the San Francisco peninsula's electricity need.

There are likely indirect environmental benefits from operating the project from 1997 through 2000 in that by comparison to the entire PG&E system, PG&E's other facilities would have to make up for the No Project alternative. Such existing powerplants would not burn as cleanly and would burn more fuel.

The Commission finds that physical need supports the project. On a physical need basis alone, the proposed project is needed after 2000, but the No Project alternative is feasible from 1997 through 2000. However, the record also establishes that the project will generate electricity more economically than Hunters Point Units Nos. 2 and 3. Consequently, prior to 2001, there will be an economic benefit serving an economic "need." This is the economic need found in ER 90, ER 92 and the BRPU. In addition, as discussed in the AIR QUALITY section, by such displacement the project will create a regional air quality benefit.

The fact that the No Project alternative is feasible during a period of economic need does not suggest that economic grounds would not be sufficient in and of themselves for construction of the project particularly where, as here, there are no significant adverse impacts from the

project itself. Therefore, in the context of the entire project, the No Project alternative fails to meet stated objectives.

Moreover, given the anticipated non-use of Hunters Point Units Nos. 2 and 3 after 2001, the No Project alternative becomes, on balance, environmentally inferior to the proposed project since generation to make up for Units Nos. 2 and 3 will come from remote facilities which are neither as clean or as efficient (in terms of fuel consumption) as the project. There are also higher energy losses to compensate for transmission of power from remote generation.

Additional Conservation

Conservation, demand-side management, and energy efficiency are basically synonymous for this analysis. Intervenors contend⁷⁹ that additional customer conservation measures should have been considered based on PG&E's May 24, 1995, Data Response No. 6 stating that without the project and without Hunters Point Units Nos. 2 and 3 after 2000:

PG&E would evaluate alternatives to the San Francisco Energy Plant which would enable PG&E to continue to provide reliable electric service [a]fter January 1, 2001. These alternatives could include aggressive DSM programs, transmission upgrades or other new local generation. (p. 4.) (Emphasis added.)

Staff and SFEC both take the position that Public Resources Code section 25305(c) prohibits consideration of additional conservation as an alternative to the project.

In the context of the preparation of the Commission's biennial *Electricity Report* forecasting electricity demand, Public Resources Code section 25305(c) provides,

⁷⁹ Intervenors' Brief (p. 27) states that "Staff further violated CEQA by failing to include in its no-project alternative a sufficient analysis of conservation." Inserting additional conservation into the No Project alternative changes the setting of the No Project alternative from 'what would be the effect of no project in the existing setting' to 'what would be the effect of no project in a setting changed by additional conservation?' The Commission believes that inclusion of additional conservation in the No Project alternative analysis would be improper. Instead, additional conservation must be analyzed separately as an alternative to the project.

Conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly taken into account only in determinations made pursuant to this subdivision, and shall not be considered as alternatives to a proposed facility during the siting process specified in Chapter 6 (commencing with section 25500).

Intervenors want to harmonize CEQA's directive to consider feasible alternatives and the Warren-Alquist Act's prohibition against considering conservation in siting cases. For the Intervenors, "harmonize" apparently means that additional conservation should be considered in a siting case as an alternative to the project on the theory that PG&E's action to pursue aggressive conservation is a "sure thing" in the absence of the SFEC's project.

The Legislature's use of the language "shall not be considered as an alternative to a proposed facility during a siting process" only has meaning in the context of the CEQA review during a siting case. The Commission does not need to search elsewhere for legislative intent. There is no vagueness. The Legislature's intent is express and unequivocal. The Commission's CEQA analysis is constrained from considering additional conservation in siting cases. This Legislative enactment followed passage of the alternatives review requirements of CEQA. Thus, the Legislature intended to limit this aspect of the Commission's alternatives review. The Legislature did so not because it did not want consideration of conservation vis-a-vis a new powerplant, but rather because it believed that consideration should take place in the overall forecast of electricity demand, not in an individual siting case.

Intervenors' Brief (p. 27) states, "In this case, PG&E has made clear that its actions in the case of no project would be to utilize aggressive conservation as necessary to meet the SFOC." (Emphasis added; see, also p. 29.) The Commission believes that Intervenors' Brief mis-states the record in the guise of argument. PG&E stated that in the absence of the project its alternatives "*could include*" aggressive conservation, transmission upgrades or new local generation. That is a far cry from "making it clear" aggressive conservation would be employed

to meet the SFOC and cannot be considered to be conservation reasonably expected to occur. It is too speculative to support any finding.

In its AFC, SFEC reviewed the conservation measures taken into account in the ER process. (AFC 3-132.) Almost 4,000 MW of additional energy was judged to be needed within PG&E's service territory during the period ending in 2001. Of the 4,000 MW, the Commission and the CPUC determined that two-thirds or more of that need would be satisfied by demand reducing measures.⁸⁰ (ER 92 at 96; CPUC Decision 92-04-045; AFC, p. 3-133.) Notwithstanding concerns that conservation was being overestimated, the CPUC allowed only 243.5 MW of the remaining third of PG&E's need to be bid in the BRPU auction. (CPUC Decision 92-04-045.)

The Commission finds that conservation was fully considered and accounted for in a manner that favored conservation over generation in ER 92 and the CPUC's BRPU. The Commission also finds that section 25305(c)'s prohibition against consideration of conservation in a siting case is controlling in this instance.

c. Transmission System Upgrades Alternative

The Intervenors also contend that a transmission line upgrade is a feasible alternative to the project. In the No Project alternative review, Intervenors claim that PG&E's 1991 transmission upgrades, combined with existing San Francisco generation, are sufficient to satisfy the SFOC so that the No Project alternative is feasible. Intervenors also argue that *future* transmission upgrades are capable of meeting the SFOC, thus providing an actual alternative to

⁸⁰ Conservation which was reasonably expected to occur was subtracted from demand to arrive at a "net" demand in ER 92. Effectively then, conservation which might have obviated the need for any new generation was taken into account in arriving at the "net" forecast of need for PG&E's service area. Moreover, accounting for conservation "reasonably expected to occur" means that conservation **NOT** reasonably expected to occur was not taken into account. Conservation not reasonably expected to occur would be infeasible *per se* as an alternative to a project. Regarding conservation **NOT** reasonably expected to occur, Intervenors have mischaracterized the record as to PG&E's intentions in the absence of the project.

the proposed project. Of course, if the 1991 PG&E transmission upgrades were sufficient to meet the SFOC, then future transmission upgrades would be unnecessary.

With regard to future upgrades, the underlying premise for the Intervenor's position is stated in their Brief (p. 22):

To the degree that there is any electrical supply problem at all in San Francisco, it is a transmission capacity problem, not a generation problem. (RT 27.)⁸¹

In the absence of a clear definition of what Intervenor's believe is a feasible transmission upgrade alternative, the Commission must make some assumptions if it is to be analyzed further.

First, if the project is not built and PG&E's Hunters Point Units Nos. 2 and 3 are in long term reserve after 2001, then the megawatts needed to meet the San Francisco load must be provided by some other powerplant connected to PG&E's transmission grid.

Second, in order for the remotely generated electricity to reach San Francisco there must be delivery capability on transmission facilities above and beyond existing usage. In the absence of adequate transmission facilities, the existing facilities must be upgraded or new transmission lines constructed.

There is a fundamental flaw in offering additional transmission lines to make up for lost local generation. For the unique circumstance of San Francisco, the SFOC is a form of insurance to protect electricity users against two possible contingencies. First, is the partial loss of incoming electricity due to an outage of the highest capacity peninsula transmission line. That circumstance is called N - 1 ("N minus one") and on the peninsula is the loss of the underground

⁸¹ In the absence of a line citation, Intervenor's page citation above to the transcript of the hearings appears to be in reference to a reading from a transcript of Staff's May 24, 1995 workshop in which PG&E participated in discussing transmission issues.

230 kV cable. The SFOC provides back-up generation in the City so that all loads are uninterrupted. Second, the other contingency is when San Francisco is "islanded"⁸² from the PG&E system due to an outside transmission grid disruption. Under this circumstance, the SFOC protects a critical 40 percent of the City's peak loads from interruption. Colloquially, giving up local generation for more transmission of remote electricity "puts more eggs in the already risky basket."

The SFOC exists to protect San Francisco from outside events, whether it be earthquake, aircraft accident, loss of peninsula transmission, or western transmission grid disruption. Depending upon the severity of the event, the City could become an "electric island." Trading away local generation on that "electricity island" for added transmission capacity off the "island" does not add reliability or maintain the reliability which exists today. Giving up San Francisco-based generation merely means that an even lower percentage of San Francisco loads would be met in the event of a complete transmission loss.

Further hearings on transmission line upgrades as a possible alternative to the project were conducted on September 12, 1995. SFEC, Staff, and PG&E all testified that such upgrades would not satisfy the "islanding" contingency of the SFOC. Only local generation will satisfy it. (9/12/95 RT 14:19-15:9; 17:3-14; 18:2-7; 50:18-21; 55:19-20; 57:20-58:2.)

Additionally, comparing the environmental effects of the proposed project with remotely generated and transmitted electricity does not lead to a obvious conclusion that such an alternative, on balance, would be environmentally superior. First, remote generation would not only be required to generate the 221 MW of the project, but also an added amount to compensate for transmission line losses. The more remote the facility generating the electricity from San Francisco, the greater line losses and so the greater the amount of added generation needed. As a general proposition, the most economic, fuel efficient and environmentally clean

⁸² In transmission engineering jargon "islanded" means isolated from the remainder of the interconnected transmission system with connotations of self-reliance for electric generation.

facilities in the PG&E system are dispatched to their maximum capability. Consequently, the added remote generation requirement would be met by facilities which are less efficient and less environmentally clean than the state-of-the-art project. That means that more fuel will be burned and more pollutants emitted with the transmission upgrade alternative than with the proposed project.

Second, the transmission lines coming up the peninsula to San Francisco already carry enough electricity that added remote generation potentially requires additional transmission lines. In order to be placed within the existing transmission corridor, existing transmission would have to be torn down and rebuilt to new specifications. As a rule, existing transmission towers are engineered to carry the conductors for which they were designed, not a new larger and heavier conductor. During the entire period of rebuilding the transmission line to the City, reliability would be decreased, peninsula transmission capacity would be reduced, and San Francisco powerplants would have to run more often to make up the difference.

However, if existing corridors were insufficient or unsafe for construction of new transmission lines, then new transmission routes would have to be established up the peninsula, which is either largely already developed or committed to public use. Thus, there would likely be significant environmental impacts along the lineal distance of the transmission with a host of potential land use, visual and electromagnetic fields issues.

Based upon the record, there does not appear to be a transmission alternative which is feasible in terms of satisfying the SFOC's reliability requirements.

D. Alternative Sites

Introduction

Consistent with CEQA, the alternative site analysis is to evaluate a reasonable range of feasible sites which could meet the project's basic objectives and which could substantially

reduce or eliminate any potentially significant adverse impacts of the proposed project. Ideally, it would first be necessary to identify and determine the potential significant impacts of the proposed project and then focus on alternatives which are capable of reducing or eliminating those impacts.

The Commission's siting process conceptually expedites a comprehensive review of not only environmental effects of the project but also alternatives within the statutory deadline of 12 months. In order to provide sufficient time to gather needed information, to assure a meaningful opportunity for public participation in hearings, and to prepare the written documentation required by law, the Commission's certified regulatory program has combined or compressed certain activities to meet the statutory deadline. In this instance, Commission procedures provide for the simultaneous evaluation of whether there are significant project impacts while at the same time conducting an alternatives review.

Prior to the publication of the *Preliminary Staff Assessment* (PSA) in mid-February 1995, sufficient information had been exchanged among the parties and discussed in open, public workshops so that an effective alternatives review proceeded on the basis of identified *potential* significant impacts. Thus, the search for alternative sites assumed that unmitigated, significant impacts would occur from the project without identifying specifically what those impacts would be and considering only minimal screening criteria for feasibility.

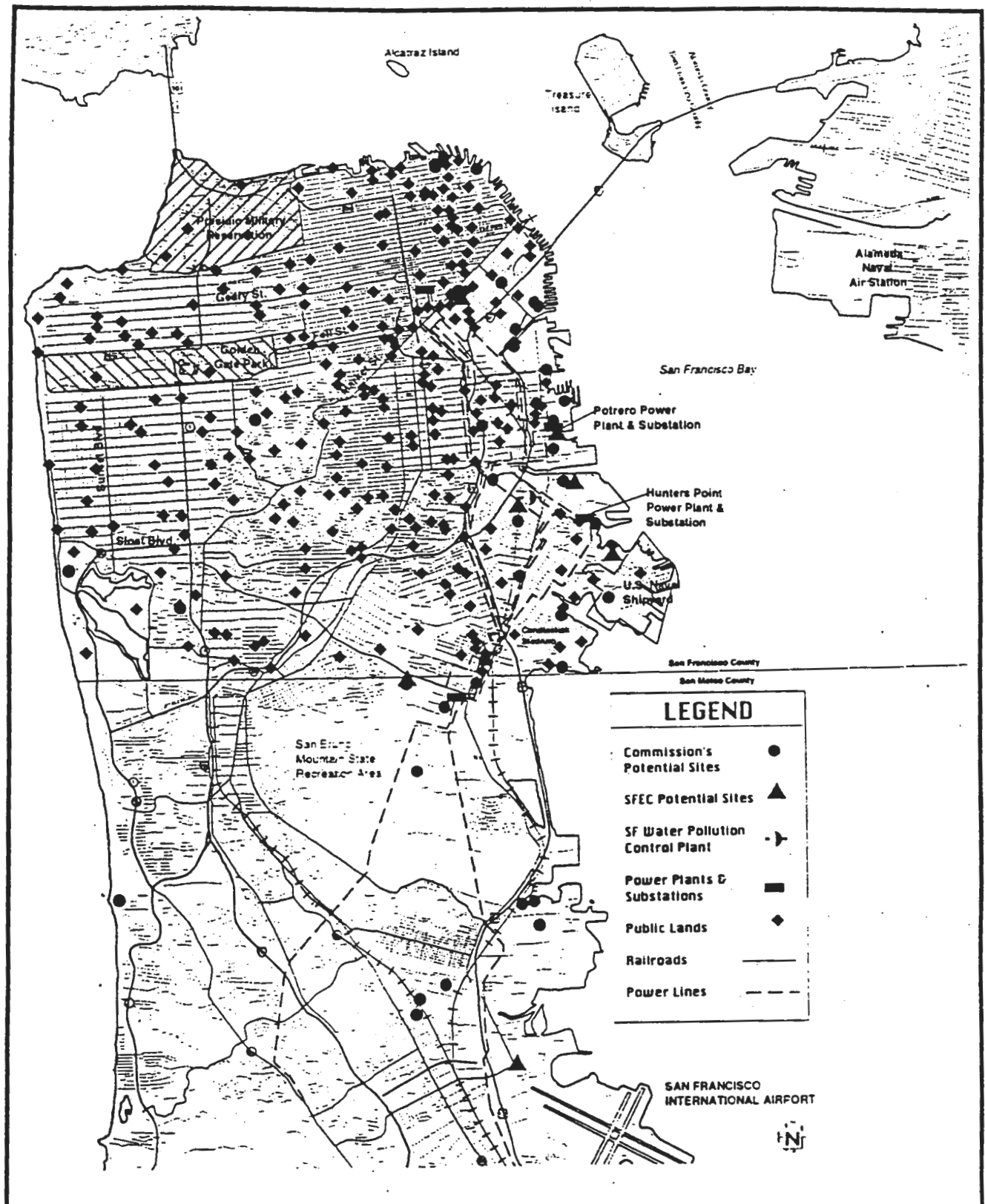
The use of the SFOC as a basic project objective effectively means that any alternative sites must be on the northern San Francisco Peninsula in order to interconnect with the existing PG&E transmission line system at or north of the H. Martin substation in Daly City. In conducting the alternative site review, Staff recognized that sites south of the San Francisco International Airport could meet the basic objectives of the project. However, in order to transmit the capacity of a 221 MW project to the PG&E service area to meet PG&E's SFOC, a new transmission line and accompanying right-of-way would have to be created. Based upon the Commission's experience in evaluating transmission lines, a new transmission line of a size and length sufficient to transport 221 MW to the H. Martin Substation (the southernmost of

PG&E's identified seven substations on the northern San Francisco Peninsula) would likely be accompanied by additional adverse environmental impacts beyond the impacts associated with the site itself. Therefore, sites south of the San Francisco International Airport were conditionally eliminated from consideration in the initial screening.

In the PSA, the Staff considered seven sites previously evaluated by SFEC, over 150 sites identified by the Staff, and two sites proposed by the public and intervenors. Four additional sites were proposed by the Intervenors following the filing of the PSA.

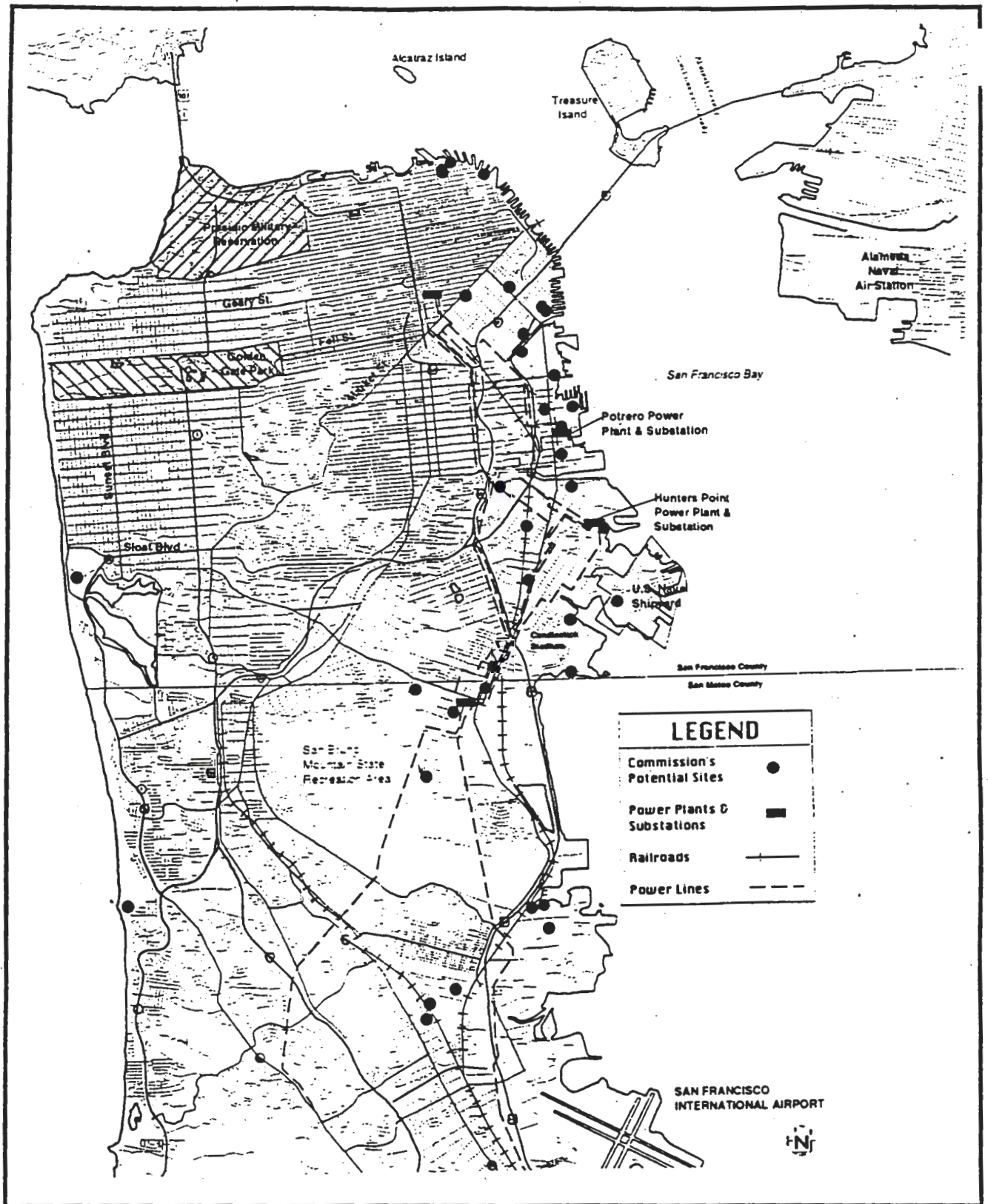
The 150 sites were identified throughout the northern San Francisco Peninsula, and spanned the entire City of San Francisco. (See, ALTERNATIVES FIGURE 2.) Staff screened each site to determine whether there existed any "fatal flaws" which would preclude siting a project at the alternative site under any circumstances. Factors considered in the screening included site size, land use compatibility of the site and adjacent areas, and whether the site would reduce or eliminate potential impacts that could occur at the Innes Avenue site. Field reconnaissance was made on the remaining 39 sites (See, ALTERNATIVES FIGURE 3.) At the end of this screening, the Staff identified eleven alternative sites to be compared with the proposed project; those sites are analyzed herein. (See, ALTERNATIVES FIGURE 4.)

ALTERNATIVES FIGURE 2
Staff's Site Screening - 150 Sites



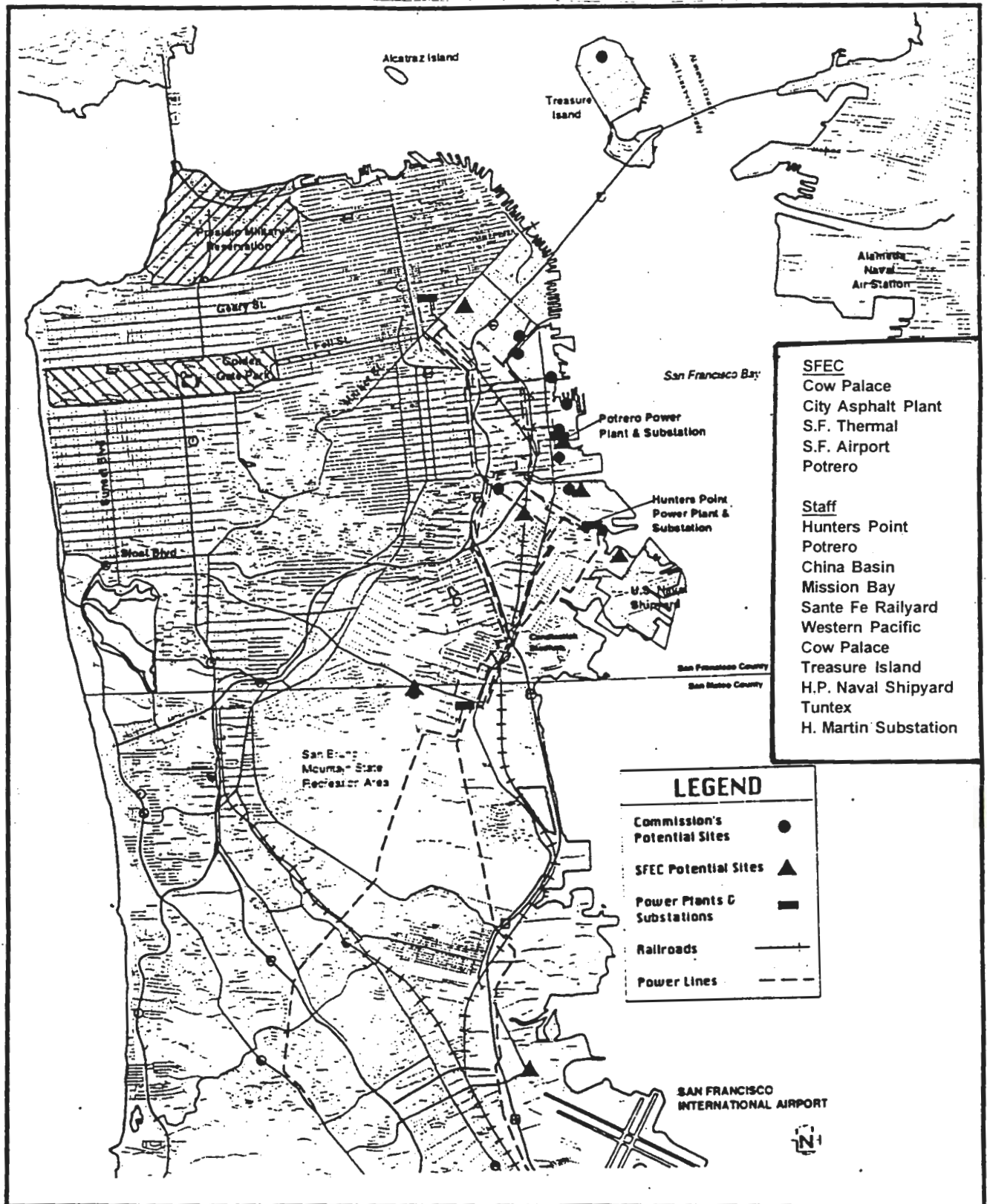
CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1995.
SOURCE: Adapted from USGS San Francisco, CA 7.5 Minute Quads. and SFEC Application For Certification, Vol. 1, July 1994.

ALTERNATIVES FIGURE 3 Staff's Field Reconnaissance Sites



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1995.
SOURCE: Adapted from USGS San Francisco, CA 7.5 Minute Quads. and SFEC Application For Certification, Vol. 1, July 1994.

ALTERNATIVES FIGURE 4 Final Staff & SFEC Sites



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, APRIL 1995.
SOURCE: Adapted from USGS San Francisco, CA 7.5 Minute Quads. and SFEC Application For Certification, Vol. 1, July 1994.

(Source: FSA, Vol. II, Fig. ALT 3)

These final eleven alternative sites are feasible with the meaning of CEQA.⁸³ Although all eleven analyzed sites appear feasible, the SFEC project's site-specific impacts at the Port site (not project-specific) have all been adequately mitigated, and there is no significant benefit to locating the project at any of these alternative sites because the same project-specific impacts, including PM₁₀, apply wherever the project is located.

The Committee reviewed Staff's Alternatives Appendix A providing the comparative analysis of the Port site and the alternative sites. Staff's Appendix B analyzes the infeasible sites. Staff's Appendix A and Appendix B are incorporated by reference herein and Appendix B is attached as *APPENDIX: ALTERNATIVES*.

SFEC's Alternative Sites

SFEC evaluated seven sites before concluding that the Innes Avenue site and Port site were its proposed and alternative sites, respectively. The other five sites are referred to as the Cow Palace site, the City Asphalt Plant site, the San Francisco Thermal site, the San Francisco International Airport area site, and the Potrero site.

The following is a summary of the review performed by SFEC and contained in the AFC regarding the feasibility of the eliminated sites. SFEC's review was based on the following factors: site size; configuration and zoning; steam host accessibility; substation accessibility; cooling water and gas supply accessibility; and site economics and availability.

Cow Palace

The Cow Palace site was identified because of its proximity, less than 1/2 mile, to the H. Martin 230 kilovolt (Kv) substation. However, this site was eliminated by SFEC because

⁸³ That is, "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors." (Cal. Code Regs., tit. 14, § 15364.)

of poor access to cooling water and natural gas supply constraints. SFEC also stated in its AFC that site size and configuration would make facility design difficult, and zoning changes would be required. A proposed alternative site, recommended by Daly City Planning Department staff, is located near this site.

City Asphalt Plant

The City Asphalt site was examined because it possessed favorable access to a potential source of secondary effluent for cooling purposes at the Southeast Water Pollution Control (SWPC) Plant. Access to the SWPC Plant also provides a feedstock for a proposed water reclamation facility which, in turn, provides SFEC with a thermal host. However, the site was found to pose significant plant configuration and site control difficulties. SFEC would have to relocate existing land uses (storage of city cars and trucks) and accommodate a city street which runs through the site. Staff also analyzed this site, found it to be too small, and precluded it from further evaluation as an alternative.

San Francisco Thermal

The San Francisco Thermal site was identified because of its proximity to San Francisco Thermal Limited Partnership's existing central heating plant which could serve as a thermal host for the project. Although possessing thermal host access, the site was disqualified due to size and configuration constraints, as well as availability constraints. Staff examined this site and agreed that the site is too small to use as an alternative to the proposed project. For this reason, SF Thermal was also eliminated from further consideration as an alternative.

San Francisco Airport Area

The San Francisco International Airport area was identified because of the heavily industrialized nature of the existing uses of the area and the presumed availability of a potential thermal host, given the high incidence of process steam consumption in and around the airport.

According to SFEC, it was persuaded that substantial displacement of existing airport structures and activities would be necessary in order to locate the facility on airport property. SFEC, therefore, determined that the development of an airport site was not feasible. This decision was reinforced, according to the AFC, by the consideration of supplying cooling water and natural gas to a facility located on airport property. Staff also examined the San Francisco Airport area and was unable to find a site suitable for locating an alternative to the proposed project.

Potrero

A site across the street from the PG&E Potrero powerplant was identified as an alternative by SFEC because of its presumed ease of transmission access. However, SFEC states in the AFC that under PG&E's bid specifications not all of the facility's electricity production could be delivered to that substation. The next closest substation is the Hunters Point substation, a distance of more than 2.5 miles. SFEC disqualified the site based on site availability and economics. Staff's alternatives analysis examined an alternative located within PG&E's Potrero powerplant.

Staff Alternative Sites

PG&E Hunters Point Site

Hunters Point was analyzed as two alternative projects: Alternative 1 would have a total capacity of 440 MW and use two combustion turbines and the existing Unit Nos. 2 and 3 steam turbines. (This was originally considered by PG&E to be the repower project at Hunters Point, also referred to as the IDR.) ALTERNATIVE 2 would use a single combustion turbine capable of generating approximately the same capacity as SFEC's proposed project. These two repower configurations at the Hunters Point powerplant are feasible alternatives.

PG&E Potrero Powerplant Site

At the PG&E Potrero powerplant, Staff analyzed a new combined cycle powerplant, which would consist of a single GE Frame 7F coupled with a steam turbine. The project would be located in the empty space south of the fuel storage tanks, and east of the Sugar House (a sugar refinery built by Claus Spreckels, now used as a warehouse by PG&E) and immediately north of the existing units. This alternative at the PG&E Potrero powerplant site is feasible.

China Basin Stadium Site

This site is immediately south of the Southern Pacific Terminal (CalTrain station) bounded by an offramp of Highway (Hwy) 280 and the CalTrain site. The site is at the corner of Fourth Street and Berry Street. This site is immediately west of China Basin. Since the initial identification of this site as an alternative, Caltrans informed the Commission it is planning to utilize this site as the terminus for the off ramps for northbound I-280. This alternative at the China Basin Stadium site is unavailable and therefore not feasible.

Mission Bay Development

The Mission Bay Development is bounded on the east by Third Street and the south by Sixteenth Street. To the north and west is the China Basin estuary. For some distance, there is no development surrounding the site, with the exception of the China Basin offices on the east side of Third Street. This alternative at the Mission Bay Development site was feasible.

Rail Yard South of China Basin

The lot is an old rail yard south of China Basin and north of Central Basin. This lot appears to contain the old Santa Fe (SF) Rail Yards. Mission Rock is on the north and 1420 Fourth Street is to the northwest. Across the street to the northeast is Crowley Marine Service

and Bayview Boat Club. This shape of this site is elongated and triangular. This alternative at the SF Rail Yard south of China Basin was feasible.

Catellus/Port Authority Site aka Western Pacific Site

At Twenty-Fifth Street between Illinois and Michigan Streets is an empty site. The site is directly across the street (east) of the Sheedy Hoist Company. The site is rectangular in shape and identified by a chain link fence around its perimeter. Title to this property is being transferred from Catellus to the City and County of San Francisco, to be administered through the Port Authority. This alternative at the Catellus/Port Authority site was feasible.

Cow Palace Basin Site

A deep canyon bounds the southwest corner of the Cow Palace site. It is behind the old Geneva Drive-In. If graded, there would be approximately seven acres available. To the west are new housing units under construction. The site would be closer to residential housing than the Port site, but not as close as the Innes Avenue site. However, the population density could conceivably be less than the Innes Avenue site, since the new housing appears to be single family residential. Furthermore, this site was identified by Daly City staff who encourage its use for power generation. This site was considered in conjunction with the alternative site selected by SFEC. This alternative at the Cow Palace Basin site was feasible.

Treasure Island

Treasure Island is a 400-acre manmade island, which is attached to Yerba Buena Island, in the San Francisco Bay. Treasure Island is currently being used as a naval station, but is scheduled to be closed October 1, 1997. At closure, the City and County of San Francisco will be the primary steward of the Island. However, federal agencies which may have priority selection of sites on the island are currently reviewing the available property.

Tuntex

The Tuntex site is located immediately east of Bayshore Boulevard and west of Tunnel Avenue. The site occupies about fifty to 100 acres in the City of Brisbane. Without identifying a specific three acre site, Staff generally focused its attention in the area directly east of the terminus of Geneva Blvd. According to the Brisbane City Planner, the parcel is currently zoned C-1 mixed use/commercial and had recently been changed to include trade commercial in the General Plan. Tuntex has discussed plans for a shopping center at the site, which is the reason the City of Brisbane changed the General Plan designation for the site. However, no specific plan has been submitted for the parcel. This parcel was rezoned from Industrial Use (M-1) in 1991 to discourage industrial development. It is unlikely that the City of Brisbane would consider rezoning to allow the siting of a powerplant at this site. However, Staff did not consider this issue a fatal flaw which would render the site infeasible, and proceeded with its analysis. This alternative site at Tuntex is feasible.

H. Martin Substation

The H. Martin Substation is owned by PG&E and generally located on the corner of Geneva Avenue and Bayshore Boulevard in Daly City. At the southern back portion of the site there appears approximately three acres of open space within the existing PG&E fenceline. This area was the focal point of Staff's alternatives analysis at the H. Martin Substation. This alternative site at the H. Martin substation was feasible.

Hunters Point Site Redevelopment

The Committee in its Second Order Re Project Alternatives, PG&E'S Hunter's Point Site (January 6, 1995), ordered Staff to include a review of the site at the existing PG&E Hunters Point Powerplant as part of its alternatives review.

Background

On January 6, 1995, following public hearings, the Committee issued the Second Order Re Project Alternatives; PG&E's Hunters Point Site (Alternatives Order) which directed Staff to evaluate the use of the existing Hunters Points Units Nos. 2 and 3 site as an alternative for the proposed project. The Committee perceived public concern reflected in the following questions:

- 1) "Why leave the old, more polluting, and uneconomic PG&E Hunters Point Units Nos. 2 and 3 in place, requiring a new site to be dedicated to an additional powerplant?"
- 2) Why not tear down Units Nos. 2 and 3 and make that space available as an alternative site for the San Francisco Energy project?"

The Committee invited responses on whether use of the existing Hunters Point powerplant site might reduce the potential cumulative effects of the San Francisco project as an "additional" industrial project in the neighborhood, as well as any potential air quality, visual, land use and other impacts, by "replacing" the older PG&E units with a newer, cleaner, and smaller facility.

Engineering Issues

PG&E performed an engineering review of replacing Hunters Point Units Nos. 2 and 3 during the development of their IDR. This review concluded that there was insufficient physical space to site the additional generating equipment in the present location of the Units Nos. 2 and 3 boilers. Furthermore, removal of Units Nos. 2 and 3 and the subsequent (hypothetical) construction of the project on that location would result in a lack of generating capacity to meet the SFOC for at least a two year period, during demolition and construction. (PG&E May 24, 1995 response 12c.) If PG&E were to proceed with the IDR, PG&E predicts a capacity loss for only six months because it would be better able to schedule demolition and construction activities as well as operation of Unit No. 4.

PG&E stated during a workshop that while the boilers for Units Nos. 2 and 3 could be removed, removal of the corresponding steam turbines would also interfere with the operation of Unit No. 4. In addition, since the project uses fresh water and cooling towers rather than once-through Bay water for cooling, additional space would be needed on-site for cooling tower placement. Staff's opinion is that sufficient space for these towers exists on the site. PG&E believes that if all the equipment associated with Units Nos. 2 and 3 were removed, sufficient space for the project would still not exist in the space currently occupied by Units Nos. 2 and 3.

In response to questions, PG&E stated it believes there is sufficient room elsewhere on the Hunters Point site to accommodate the project. However, PG&E qualified its response by indicating that it had not examined whether there would be engineering or physical issues involving the use of other locations on the Hunters Point site for the project, because the matter had not been analyzed. (5/24/95 PG&E Data Responses, pp. 7 & 8.)

Environmental Issues

The Hunters Point Units Nos. 2 and 3 are old, each nearing half a century in age. They are more polluting on a pounds-per-hour basis and less economic than a newer, more efficient powerplant like the proposed project. However, it is not a foregone conclusion that the community⁸⁴ would experience less pollution as the result of the project's operation at Hunters Point. While the proposed project emits less pollution per unit of fuel burned or unit of electricity generated⁸⁵ (i.e., it will be much more efficient and clean) compared to Hunters Point Units Nos. 2 or 3, it will annually produce more PM₁₀ in the immediate community

⁸⁴ This is a brief discussion of the air emissions from the three powerplants in the immediate community only. It is not an analysis of the PG&E system emissions with the addition of the SFEC project. Please see the AIR QUALITY section of this document for a system-wide analysis.

⁸⁵ The emissions rate for the SFEC project is expected to be 0.00014 lbs NO_x/kWh, while Hunters Point Unit 3 would emit 0.005 lbs NO_x/kWh, almost 30 times higher.

compared to Hunters Point Units Nos. 2 and 3 due to expected differences in projected annual operating capacities.

Therefore, locally, there would be within prescribed limits, greater releases of PM_{10} with the project than without. At limited times during the winter months, this would be in addition to levels of PM_{10} that already exceed the state 24-hour PM_{10} standard in the Bay Area.

The unmitigated air quality impacts of the project located at the Hunters Point site would be less than the PG&E repower alternative and the same as the Port site since the project located at Hunters Point would probably not have the benefit of obtaining emission reduction credits from the shut down of Units Nos. 2 and 3 and would presumably use cooling towers and the proposed cooling water source. On the other hand, unmitigated water and biological resources impacts from the project located at Hunters Point would be less than the repowering alternative and comparable to the Port site since it is assumed to utilize the same water source as proposed.

Policy Issues

In response to the Committee's question of "Why not tear down Units Nos. 2 and 3 and make that space available as an alternative site for the San Francisco Energy Project?", PG&E responded:

The use of the Hunters Point Powerplant site was expressly ruled out in the BRPU solicitation and therefore this is not within the scope of the San Francisco Energy project. Whether PG&E would voluntarily allow the use of its plant site is speculative since it involves an option which is not within the BRPU solicitation that brought the project before this commission. (PG&E May 24, 1995 Response 12b.)

During the May 24, 1995 workshop on alternatives, PG&E also raised several policy issues related to allowing a private developer to use an operating powerplant site owned by PG&E.

PG&E strongly expressed that there is no language in the Public Resources Code or Public Utilities Code which grants to either the Commission or the CPUC the authority to require a utility to allow the use of its properties for construction of generation by other entities. They also identified policy issues that would need to be resolved prior to allowing third party use of a utility site including transfer of asset value, rate-payer impacts and reimbursement, shareholder impacts and reimbursement, liability, access, operational integration and working relationship agreements.

The CPUC staff did not have a direct opinion on this issue. However, the staff did direct our attention to the CPUC's 1992 decision Re Biennial Resource Plan Update in which the CPUC found that the Final Standard Offer 4 procedure captures the economic benefits of using existing equipment and transmission lines at an already existing developed site. The low cost of the repowering at an existing site is reflected in the IDR's lower costs compared to other resource options, and it is these lower costs that become the benchmark against which a QF bids. (D.92-04-045, 44 CPUC 2d at 60.)

The Commission does not consider the use of the specific site of the Hunters Point Units Nos. 2 and 3 site as a feasible alternative to the project because of engineering and operational concerns: insufficient space, disruption of Unit No. 4 and potential non-compliance with the SFOC during construction.

Intervenor Alternative Sites

Following the issuance of the PSA, several alternative sites were identified by the public or the Intervenor. Hunters Point Naval Shipyard was identified by a San Francisco Redevelopment Agency Commissioner. Additionally, the Presidio, Alcatraz Island, Treasure Island, the Oceanside Water Pollution Control facility, and a Sloat Boulevard lot were identified by Intervenor. The Presidio and Alcatraz Island were eliminated due to inconsistency with the Golden Gate National Recreation Area planned uses. The Oceanside Water Pollution Control facility was eliminated due to approved plans by the San Francisco Zoo to use the location for

mammal and avian conservation centers. The Sloat Boulevard site has a pending permit application for a planned unit development and is otherwise too small. (FSA, Vol. II, p.196.) APPENDIX: ALTERNATIVES contains more detailed discussion of these eliminated sites. The Hunters Point Naval Shipyard site and Treasure Island site were found to be feasible in discussions above.

Conclusion

Based upon a review of all environmental issue areas, locating the project at one of the alternative sites would not reduce or eliminate a significant impact associated with the project since from an environmental impact perspective the project's impacts have all been adequately mitigated. Nor, based upon Staff's comparative analysis, do any of the alternative sites appear on balance to be environmentally superior.

Alternative Technology

Alternative technologies were suggested by various parties as a means of providing electricity to the San Francisco Peninsula. Staff reviewed the Commission's electricity planning process and any direction given to PG&E regarding alternative technologies. That process, and the major alternative generating technologies available in California, are discussed below.

Every two years the Commission reviews the commercial status and estimated cost of alternative technologies, including renewable options. This review occurs as part of the Commission's preparation of three major policy documents: the ER, the Energy Development Report (EDR), and the Energy Technology Status Report processes (ETSR).

The Commission determines the need for new electric generation resources in the ER. In the ER the Staff evaluates regional resource plans to meet the need, keeping in mind California's long-term electricity policy concerns such as improving air quality. The EDR focuses on trends for new energy technology development and the best options for meeting

future energy needs, while the ETSR examines the commercial status of various energy technologies. Findings from the EDR/ETSR process are incorporated into the ER through policy choices which includes the most promising renewable technologies in regional resource plans. These analytical report processes provide the public and the energy industry with a comprehensive summary of the Commission's efforts to ensure a secure, diverse mix of energy technologies in California.

During the ER 92 process, the Commission determined that a specific allotment of renewable resources should be set aside to ensure continuing diversity of electric generation resources. During the current era of relatively low natural gas prices, the Commission declared that a mix of resources is prudent to ensure that California does not become overly reliant on gas. In this context, the Commission recommended that Pacific Gas and Electric (PG&E) acquire 22.5 MW from wind generation sources in 1998. Given PG&E testimony regarding its upcoming need for a reliable power supply on the San Francisco Peninsula, the Commission also determined in ER 92 that PG&E would need 221 MW in 1997 from a repowering of Hunters Point Units Nos. 2 and 3, or from another project with a lower cost than the repowering.

As part of its alternatives analysis, Staff compared various alternative technologies, scaled to meet the project's objectives, with the proposed project, examining the principal electricity technologies which do not burn fossil fuels such as natural gas. The technologies which could serve as alternatives to the proposed project are geothermal, solar, hydroelectricity, and wind. Each of these technologies could be attractive from an environmental perspective because of the absence or reduced level of air pollutant emissions, including PM₁₀.

There are no geothermal resources on the San Francisco peninsula. Solar, wind, and hydro-electricity resources require large land areas, which are lacking on the San Francisco peninsula, in order to generate 221 megawatts of electricity. Specifically, centralized solar projects using the parabolic trough technology require approximately 5 acres per megawatt; 221 megawatts would require approximately 1,100 acres. Photovoltaic arrays require similar acreage per megawatt. Furthermore, the peninsula does not have enough sunny days for

generating this amount of electricity. Centralized wind generation areas generally require 40-50 acres per megawatt, with 221 megawatts requiring 8,800-11,000 acres. Large hydroelectric facilities generating 50-250 megawatts would inundate at least 1,000-2,000 acres with water. The acreage requirements are large even if the 221 megawatts were to be generated incrementally at separate sites, with a single technology or a combination of technologies such as solar, hydroelectric or wind. (FSA, Vol. II, p. 183.)

The alternative technologies discussed above have the potential for significant land use and visual impacts. Therefore, these options would not reduce the potential significant adverse impacts of the proposed project. Furthermore, when developed on a centralized basis, the alternative technologies have the potential for other significant impacts not relevant to the project, such as disturbance of sensitive wildlife species and their habitats.

Geothermal, solar, wind, and hydroelectricity resource areas in other California regions would be located a considerable distance from the San Francisco Peninsula. The potential for new geothermal generation in California is quite limited. The Known Geothermal Resource Area in Sonoma and Lake Counties is on the decline. The established Coso area in Inyo County and the new Medicine Lake area in Siskiyou County both offer some opportunity, but the potential for developing 221 megawatts in either area is very uncertain. (FSA, Vol. II, p. 183.)

Currently, there are no plans for utility scale solar or hydroelectric development in California. Distributed applications such as residential or commercial solar photovoltaic collectors, or small hydroelectric generators are equally speculative with a multitude of sites currently scattered throughout the state. The generating capacity of individual units of this type is extremely small. Such minimal capacity precludes a collection of them being located in such a way that would provide a small percentage of 221 megawatts. For example, at 10 kilowatts per individual unit it would take 22,100 units to comprise the equivalent output of the proposed project.

Ninety five percent of all the wind generation in California takes place at three locations: 41 percent at Altamont, east of Livermore; 38 percent at Tehachapi, east of Bakersfield; and 16 percent at San Geronio, north and west of Palm Springs. Of all these areas, the Commission believes that the Tehachapi area has the most, albeit modest, potential for increasing capacity. However, since wind is a variable resource which is not available all the time, it does not appear to meet PG&E's need for a highly reliable source of power. Furthermore, as a remote resource, the Tehachapi wind option and any geothermal, solar, or hydroelectric option would require a long transmission connection, with accompanying environmental impacts.

The major potential impacts of the four renewable technologies examined in this analysis, plus the potential impacts of a new transmission connection from remote resource areas are summarized below:

TECHNOLOGY	POTENTIAL ENVIRONMENTAL IMPACTS
Geothermal	Biology (e.g., habitat disturbance), noise visual, air quality, water quality, conflicts with existing and planned land uses, depleting geothermal resources.
Wind	Biology (e.g., raptor collisions), noise, visual, conflicts with existing and planned land uses.
Solar-Parabolic Trough	Biology, conflicts with existing and planned land uses, visual.
Solar-Photovoltaic	Biology, conflicts with existing and planned land uses, visual
Hydroelectric	Biology, conflicts with existing and planned land uses, visual
Transmission Lines	Conflicts with existing and planned land uses, visual, biology, soil erosion (depending on terrain)

In January 1994, as part of the development of the draft 1994 ER the Commission staff estimated costs for the above renewable options as shown below:

TECHNOLOGY	ESTIMATED COST (\$/Dependable kW without transmission costs)
Geothermal	3200
Wind	863
Solar-Parabolic Trough	2921
Solar-Photovoltaic Concentrator (commercial availability at utility scale not expected until 2000)	2156
Hydroelectric	Not estimated

The Staff estimated the cost of a PG&E repower to be approximately \$679 per dependable kW. SFEC beat PG&E's price in a resource auction, the BRPU, conducted by the CPUC in late 1993.

The technology for developing 221 megawatts from distributed, small scale solar, hydroelectric or wind facilities⁸⁶ is commercially available. However, the time required to find a multitude of distributed sites sufficient to produce 221 megawatts, address potential environmental impacts, and secure permits would be substantial. These timing and logistical challenges preclude the distributed options as practical alternatives, assuming that the power must be available by the proposed project's operating date of June 1997.

The lack of large land areas on the San Francisco peninsula, the development uncertainty, and potential for other impacts at remote resource areas are significant constraints. Therefore, geothermal, solar, wind, and hydroelectric technologies do not present any feasible alternatives to the proposed project.

Additional hearings on small scale distributed generation alternatives were conducted on September 12, 1995. Based on Staff testimony, batteries and fuel cells are not commercially available on a sufficiently large scale to achieve the project objectives. Also, in the case of batteries, there is a recharge requirement which cannot be met without local generation.

Smaller gas-fired combustion turbines would be dedicated to electricity production only, thereby giving up the added efficiency of cogeneration. In order to cogenerate, these facilities would require water for steam and cooling. Distributed turbine cogeneration essentially creates a handful or more of miniature versions of this project. Miniaturization has limits, below which the generating output of the facility may be reduced, but the size of the facility is not reduced. Staff estimates the likely minimum site size to be on the order of 2 acres for a 50 -60 MW

⁸⁶ Geothermal resources in California are relatively limited. Therefore, they have been excluded from the small scale distributed generation discussion.

cogeneration project. (9/12/95 Woo/Davis, p. 4.) At some point, the total land used for more small scale cogenerators exceeds the size of site for a single project.

In addition to requiring a suitable site, each small scale cogeneration project would burn natural gas, cause emissions, consume water, require water lines, gas lines, perhaps steam lines, transmission lines and switching facilities.

There are also economies of scale, allowing the larger 200 MW size project to generate for about half the cost per kilowatt as a 10 MW facility. (9/12/95 Woo/Davis, p. 6.) Thus, small scale distributed generation is not a feasible alternative to the project.

FINDINGS AND CONCLUSIONS

Based upon the weight of the evidence in the record, the Commission finds as follows:

1. No Project Alternative. The No Project alternative is feasible until 2001. However, after 2001 the No Project alternative is not feasible. If this project or an alternative is not built, PG&E will not have sufficient electric generation resources which can be relied upon to meet the SFOC under all conditions when PG&E's Hunters Point Units Nos. 2 and 3 are restricted by the Bay Area Air Quality Management District (BAAQMD) rules to operating at no more than a four percent annual operating capacity after December 31, 2000.⁸⁷
2. If the proposed project's impacts are mitigated in accordance with the Conditions of this Decision, the various permutations of the No Project alternative (increased local generation, upgrading/expanding transmission line capacity, etc.) which are speculative at this time, would not reduce or eliminate any potential significant adverse impacts of the proposed project.
3. Conservation. Public Resources Code section 25305(c) limits the scope of alternatives analysis during a siting case, if conservation, load management, or other demand reducing measures reasonably expected to occur are explicitly examined in the Commission's ER. The analysis herein is for informational purposes to show both the

⁸⁷ Unless PG&E takes steps to retrofit Hunter Point Units Nos. 2 and 3 to meet the BAAQMD emission rules effective 1/1/2001.

process and substantive result of the Commission's review of conservation measures related to electricity demand and the siting of generation facilities.

4. Alternative Technologies. The lack of large land areas on the San Francisco peninsula, the development uncertainty, and potential for other impacts at remote resource areas are significant constraints. Therefore, geothermal, solar, wind, and hydroelectric technologies do not present any feasible alternatives to the proposed project. Small scale distributed generation, providing 221 MW, would likely increase land use impacts, would not otherwise reduce facility infrastructure impacts, and is not presently economic compared to the project.
5. Transmission System Alternatives. A transmission upgrade on the Peninsula is not a feasible alternative since it cannot meet the reliability requirements of PG&E's SFOC.
6. Based upon the potential land use impacts, biological and visual resource impacts, and public concern regarding electric and magnetic fields (EMF), it appears unlikely that transmission system upgrades would be an environmentally superior alternative to the proposed project if the proposed project's impacts are mitigated in accordance with this Decision. Consequently, transmission system upgrades to the PG&E system between the San Mateo and H. Martin substations would not lessen or eliminate any potentially significant adverse environmental impacts of the proposed project.
7. Alternative Sites. The suspension of the review of the Innes Avenue site eliminates one of the alternative sites to which the Port site is compared.
8. Eleven alternative sites were identified that appear able to accommodate the project. However, the project impacts have all been adequately mitigated though conditions imposed in this Decision, when located at the Port site. These project-specific impacts are similar whether the project is located at SFEC's proposed site or any of the alternative sites. Therefore, locating the project at any of the alternative sites does not provide a benefit by eliminating or avoiding a significant adverse impact.
9. Hunters Point Existing Site Redevelopment. The use of the specific site of the PG&E's Hunters Point Units Nos. 2 and 3 site is not a feasible alternative to the project because of engineering and operational concerns: insufficient space, disruption of Unit 4, and potential non-compliance with the SFOC.

CONDITIONS OF CERTIFICATION

None.

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AIR QUALITY

Impacts from regulated air pollutants are a major concern in the siting of any fossil fuel fired electric generation project. To assess the potential impacts of the proposed project on air quality, the Commission examined: (1) the existing ambient or background concentrations of air pollutants; (2) the project's emissions; and (3) the project's impacts on ambient emissions. How a project will affect existing conditions depends on many factors in addition to the project's emission rates. The most important other factors are the location of the project, local wind speed and direction, climatic conditions, and worst-case meteorological conditions.

The extensive air quality evidence considered in this proceeding has included the testimony of the Bay Area Air Quality Management District (BAAQMD or District), San Francisco Energy Company (SFEC), the Commission staff (Staff), and Intervenors' witnesses.

1. Issues

There is no dispute that the BAAQMD has found that the proposed project complies with all applicable state and federal air quality laws and standards.

Nevertheless, the issues disputed by the parties related to two potential air quality impacts. The first issue is whether PM_{10} ⁸⁸ mitigation (offsets) is needed, and if so, whether the Applicant's proposal to resod two playgrounds to reduce fugitive dust is adequate in terms of equivalence of combustion and dust PM_{10} . This issue includes quantifying the amount of offsets which would result from resodding these playgrounds.

The second issue is whether 1994 - 95 exceedences of the federal ozone standard will render the District non-attainment; this issue raises the question of whether adding ozone

⁸⁸ Particulate matter less than 10 microns in diameter. One micron equals about four-thousandths of an inch.

creating emissions to a non-attainment area would be a significant impact within the meaning of the California Environmental Quality Act.

2. Summary of Evidence

a. BAAQMD

The BAAQMD has primary responsibility for the administration of both federal and state air quality protection laws for stationary (industrial) sources. (Clean Air Act, §§ 160-169A, 42 U.S.C., §§ 7470-7491; 40 CFR Part 52; Cal. Health & Saf. Code, §§ 40000, 40200 and 40201.) The United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have respective review authorities and responsibilities in connection with the regulatory actions of the BAAQMD.

At the evidentiary hearing on July 20, 1995, the District presented its Preliminary Determination of Compliance (Preliminary DOC) discussing the project's compliance with all applicable laws, ordinances, regulations and standards.⁸⁹ BAAQMD found that SFEC has satisfied all applicable District permit requirements. (7/19/95 RT 130:7-139:18)

i. Best Available Control Technology (BACT)

Based upon New Source Review (NSR) requirements, SFEC will use Best Available Control Technology (BACT) to reduce project emissions, including specifically:

- selective catalytic reduction (SCR) with ammonia injection to reduce nitrogen oxide (NO_x) emissions;
- oxidizing catalyst to abate carbon monoxide and precursor organic compounds (POC);

⁸⁹ The BAAQMD presented its Final DOC (FDOC) at the September 12, 1995 hearing.

- low-NO_x burners to reduce POC emissions; and
- exclusive use of clean fuel (natural gas) to minimize sulfur dioxide (SO₂), particulate matter (PM₁₀), and toxic compound emissions.

ii. Project Emissions

AIR QUALITY TABLE 1 summarizes the maximum project criteria pollutant emissions. The total emissions in tons per year are used to determine if the Prevention of Significant Deterioration (PSD) requirements of the NSR have been triggered for each pollutant. The project will emit less than 100 tons/year of each of the aforementioned pollutants. As such, the project does not have to comply with the PSD requirements.

AIR QUALITY TABLE 1
Maximum Facility Criteria Pollutant Emissions

Criteria Pollutant	pounds/hr	pounds/day	tons/year
Nitrogen Oxides (NO _x)	31.6	544.7	97.61
Carbon Monoxide (CO)	14.5	314.6	85.3
Precursor Org. Comp.(POC)	5.3	110.45	42.64
Particulate Matter (PM ₁₀)	13.1	298.0	49.7
Sulfur Dioxide (SO ₂)	2.2	39.1	6.77

(Source: FDOC, Table 1, p. 5.)

iii. Emission Offsets

Pursuant to District Regulation 2-2-302, federally enforceable emission offsets are required for NO_x and POC emissions in accordance with AIR QUALITY TABLE 2:

AIR QUALITY TABLE 2⁹⁰

	NO _x	CO	POC	PM ₁₀	SO ₂
Total Project Emissions	97.16	85.2	42.6	44.67	6.74
Req'd Offsets	YES	NO	YES	NO	NO
Offset Ratio	1.15:1	N/A	1.0:1.0	N/A	N/A
Offsets (tons)	111.73	N/A	42.6	N/A	N/A

(Source: FDOC, Table C-1, p. C-1.)

Pursuant to District Regulation 2-2-302, SFEC is allowed to obtain 112.6 tons per year (tpy) of POC emission reduction credits to offset the 97.16 tpy NO_x emission increase associated with the project. Under Regulation 2-2-302, the District will provide emission offsets for the POC emission increase of 42.6 tpy from the District Small Facility Banking Account since SFEC proposes BACT for NO_x and POC. Pursuant to Regulation 2-2-303, emission offsets will not be required for PM₁₀ and SO₂ because this facility is projected to emit less than 100 tpy of these substances.

⁹⁰ Difference from Air Quality TABLE 1 is due to deduction of cooling tower and pump diesel engine emissions. See FDOC Table B-14

iv. Health Risk Assessment

A health risk screening analysis was conducted for carcinogenic and toxic compound emissions. The carcinogenic compounds emitted from this facility include benzene, formaldehyde, and polycyclic aromatic hydrocarbons (PAHs) including benzo(a) anthracene and benzo(a)pyrene. The total increased cancer risk to the maximally exposed individual was found to be 0.58 in a million (less than one in one million) based upon air dispersion models ISCST2 and COMPLEX1. The models are approved by the CARB. (FDOC p. 11)

The toxic compounds emitted by the facility include ammonia and toluene. The health risk due to toxic compounds is quantified through a number called the acute hazard index, which was found by the District to be 0.005 for ammonia and toluene. The increased acute hazard index due to toxic compound emissions was less than one. According to the District's Risk Management Policy, the increased risk from the project is deemed not to be significant. (FDOC p. 11)

b. San Francisco Energy Company

i. Project Emissions

SFEC presented testimony reflecting the same analysis performed by the BAAQMD and confirming the District's determination that the proposed project meets all applicable LORS. (7/20/95 RT 15:17-21)

PM₁₀

SFEC acknowledged disagreement with Staff relating to the potential impacts of PM₁₀ emissions. SFEC cites the CEQA Guidelines on the issue of whether conformity with applicable standards presumes the absence of a significant environmental impact:

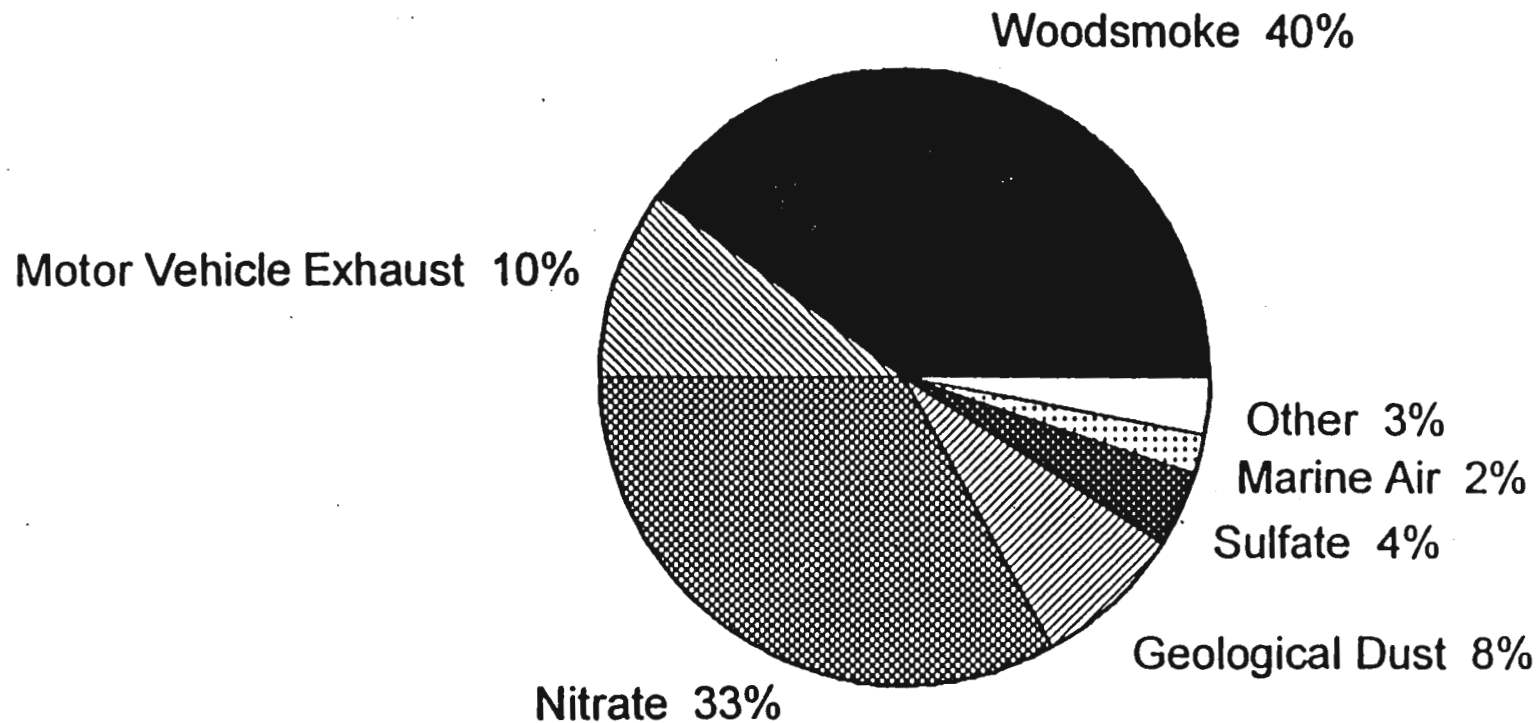
If an air emission...meets the existing standard for a particular pollutant, the lead agency may presume that the emission...of the pollutant will not be a significant effect on the environment.

If other information is presented suggesting that the emission...may cause a significant effect, the lead agency shall evaluate the effect and decide whether it may be significant. (Cal. Code Regs., § 15064(i).)

SFEC asserted that the project's PM_{10} emissions, alone or in conjunction with ambient PM_{10} during times of violation of the state 24-hour standard, do not constitute a significant impact. SFEC presented the BAAQMD's graph showing contributors to ambient PM_{10} , including wood smoke, motor vehicle (mostly diesel) exhaust, and nitrate (a precursor to secondary PM_{10}). (See Figure 1) Stationary industrial sources are a small percentage of the contributors to ambient PM_{10} . SFEC argued that the project's PM_{10} emissions even during times of violation of the state 24 hour standard must be viewed in the context of the BAAQMD's regulatory program to reduce regional PM_{10} .

The BAAQMD has a District-wide programmatic approach to reduce PM_{10} by encouraging the cessation of woodburning during the winter peak PM_{10} conditions, reduction of vehicle miles travelled, reduction of direct PM_{10} emissions through NSR and PSD if applicable for new stationary sources, reduction of secondary PM_{10} through reduction of nitrogen oxides, and restrictions on activities generating non-combustion PM_{10} . (7/20/95 Rubenstein p. 3; Applicant Brief [Appl. Br.], p. 148.)

Contributions to Ambient PM10 Concentrations by Source Type



Note: 97% of Ambient PM10 levels accounted for in Bay Area, during wintertime studies conducted by BAAQMD.

Source: BAAQMD Data

SFEC conducted an air quality impact analysis for all pollutants, including PM₁₀. The state 24-hour standard for PM₁₀ is already exceeded in the District. However, SFEC found that the worst case maximum predicted impact of the proposed facility is below the U.S. EPA significance level of 5 ug/m³.⁹¹ From that, SFEC concludes, the project will not significantly cause or contribute to the existing exceedence of the state PM₁₀ standard. (7/20/95 RT 15:24-17:11) As an example, SFEC notes that the District also exceeds state standards for carbon monoxide. That exceedence is associated with woodburning and motor vehicle exhaust. Yet, the project's contribution is insignificant. At times when the ambient carbon monoxide levels are highest, the project's emissions out the stack will contain less carbon monoxide than the inlet air coming into the combustion turbine. (Rubenstein, p. 12-13.)

ii. Cumulative Impacts

SFEC also performed two types of cumulative air quality impact review. The first was to determine whether there would be a violation of any state or federal standard caused by the proposed project including combination with other existing and reasonably anticipated future projects. SFEC identified seven other local projects and found that their combined criteria emissions were below the applicable state and federal ambient air quality standards, except the state 24-hour PM₁₀. Since PM₁₀ emissions are below federal significance levels of 5 ug/m³, SFEC contends there are no significant cumulative impacts. (1/5/95 Cumulative Air Quality Analysis, p. 14.)

The second type of cumulative impact review by SFEC reflected a situation where there is an existing violation of state or federal ambient air quality standards to which the proposed project adds a small, incremental amount of pollution.

⁹¹ Staff disagreed with SFEC's use of the EPA Level of Significance for PM₁₀. Staff argues that the EPA PM₁₀ level of significance of 5 ug/m³ is for the PSD review, and that PSD review occurs only in areas which are attainment for federal standards. The District is non-attainment for the state 24-hour PM standard. The EPA level of significance should only apply when added pollution is going into air legally considered undeteriorated. (Staff Reply Br., p. 10.)

By using ELFIN modeling, SFEC claims that its project will displace older PG&E units which emit more direct PM₁₀ and precursors to secondary PM₁₀. (Rubenstein, p. 5; Appl. Br., p. 148.) Arguing that BAAQMD is properly treating the PM₁₀ exceedences as a District-wide problem, SFEC claims that the regional programs to reduce PM₁₀ emissions are the appropriate way to reduce violations of the state 24-hour standard. (See, AIR QUALITY FIGURE 2). SFEC states that there is no technical basis to assert that a net increase of PM₁₀ emissions at the project site will result in localized, as differentiated from regional, impacts since the photochemical reactions which create the ambient concentrations of PM₁₀ take several hours. (Rubenstein, pp. 13, 17; Appl. Br., p. 150.) Therefore, since the project will regionally displace more polluting PG&E facilities, the emissions from these facilities should be subtracted from the ambient concentration before the lesser project contribution is added. This is applicable to all pollutants (ozone and PM₁₀) and to the District as a whole. (Rubenstein, pp. 8-9; Appl. Br., p. 150-151.)

Thus, according to SFEC, the project does not create a significant PM₁₀ air quality impact regionally because of the displacement of older PG&E facilities, and locally because added emissions are not above the EPA significance level. (Rubenstein, pp. 13; Appl. Br., p. 156.)

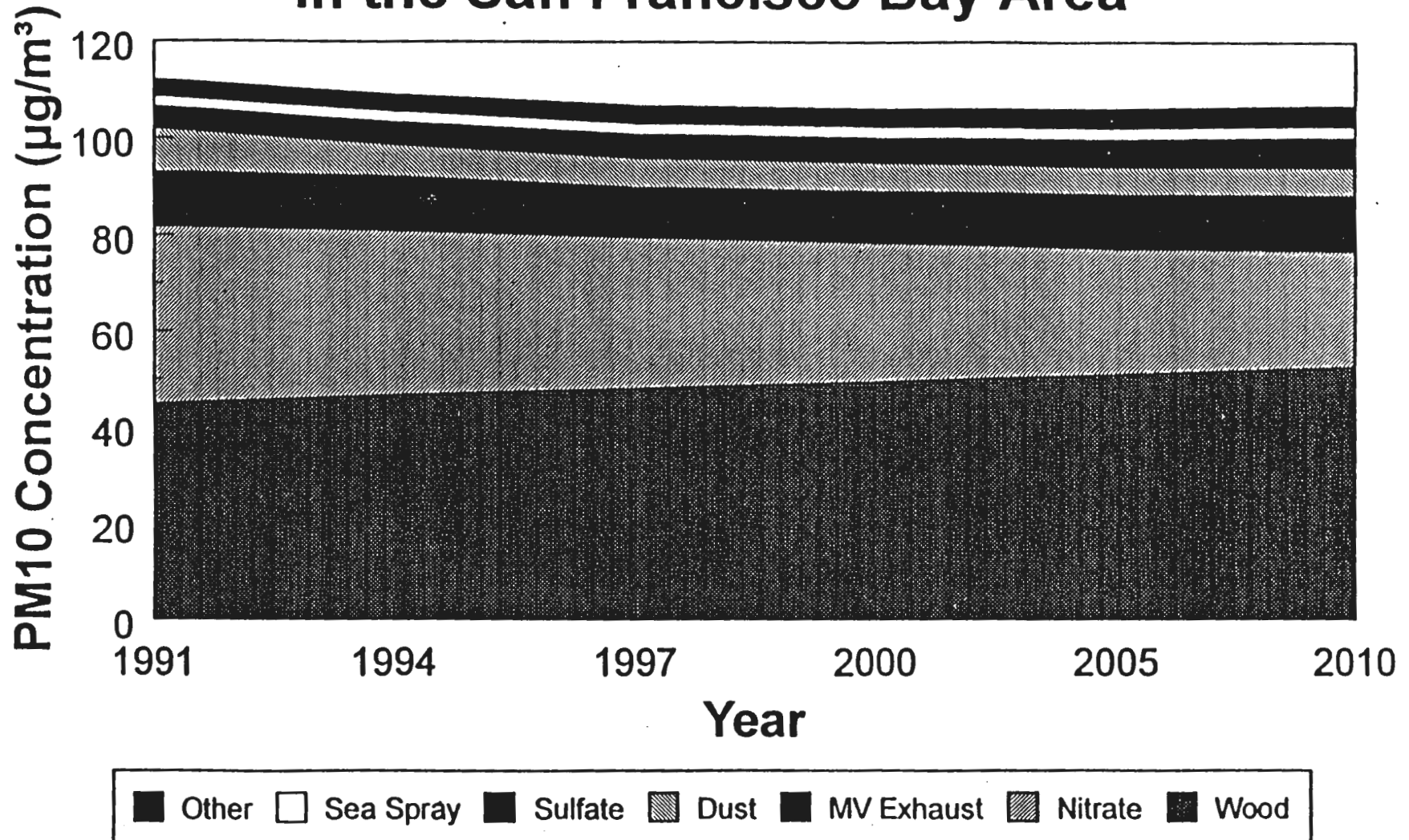
iii. PM₁₀ Mitigation

Although SFEC believes it has demonstrated that there will be no significant air quality impacts from the proposed project, it has responded to Staff concerns about localized PM₁₀ emissions. SFEC analyzed the PM₁₀ profile in Bayview Hunters Point and determined that it was similar to other areas in the Bay Area because the primary contributors (wood smoke, vehicle exhaust, and nitrate emissions) produce a regional effect. As such, Bayview Hunters Point is not a PM₁₀ "hot spot." (Rubenstein, p. 13)

SFEC nonetheless considered potential mitigation measures in the Bayview Hunters Point area, including reduction of indirect PM₁₀ emissions from other combustion sources, such as

PG&E's Potrero and Hunters Point facilities, control of dust creating businesses and activities, paving dirt roads, washing streets, re-planting open areas, and control of restaurant smoke.

Forecast of Peak PM10 Levels in the San Francisco Bay Area



SFEC concluded that resodding the two playgrounds located in the area of PM₁₀ impact and reducing combustion turbine direct PM₁₀ emissions should address the concerns of Staff. SFEC proposed to provide 51.3 tons per year of direct PM₁₀ emission reductions by resodding eroded dirt areas at Youngblood Coleman Playground (39.4 tpy) and Shoreview Playground (11.9 tpy). Direct PM₁₀ emissions from the turbine will be reduced by 1 lb/hr (4.3 tpy). (Rubenstein, pp. 23, 26). AIR QUALITY FIGURE 3 shows the "after" effect of playground mitigation. SFEC also supported the efficacy of the resodding mitigation due to sufficient equivalence of combustion PM₁₀ and dust PM₁₀. (Rubenstein, p. 26)

c. Staff

i. Project Emissions

The Staff conducted an independent air quality review as well as coordinated with the BAAQMD on the preparation of the District's DOC. The Staff concurs with the conclusion of the District that the project complies with the applicable air laws. (7/20/95 RT 87:18-88:8) However, Staff also believes that its role in assessing whether a proposed project has environmental impacts in the context of CEQA includes determining whether NSR compliance ensures the absence of significant air quality impacts.

Ozone

Specifically regarding ozone, Staff considered a variety of factors (FSA, Vol. I, p. 118), including whether the number and severity of violations was increasing or decreasing over a statistically significant time and whether the District had an effective attainment plan in place. On the basis that violations were decreasing and effective attainment plans are in place, Staff concluded that the project will not significantly contribute to the state ozone standard violation. (Staff Supp. Air Quality Testimony, p. 5).

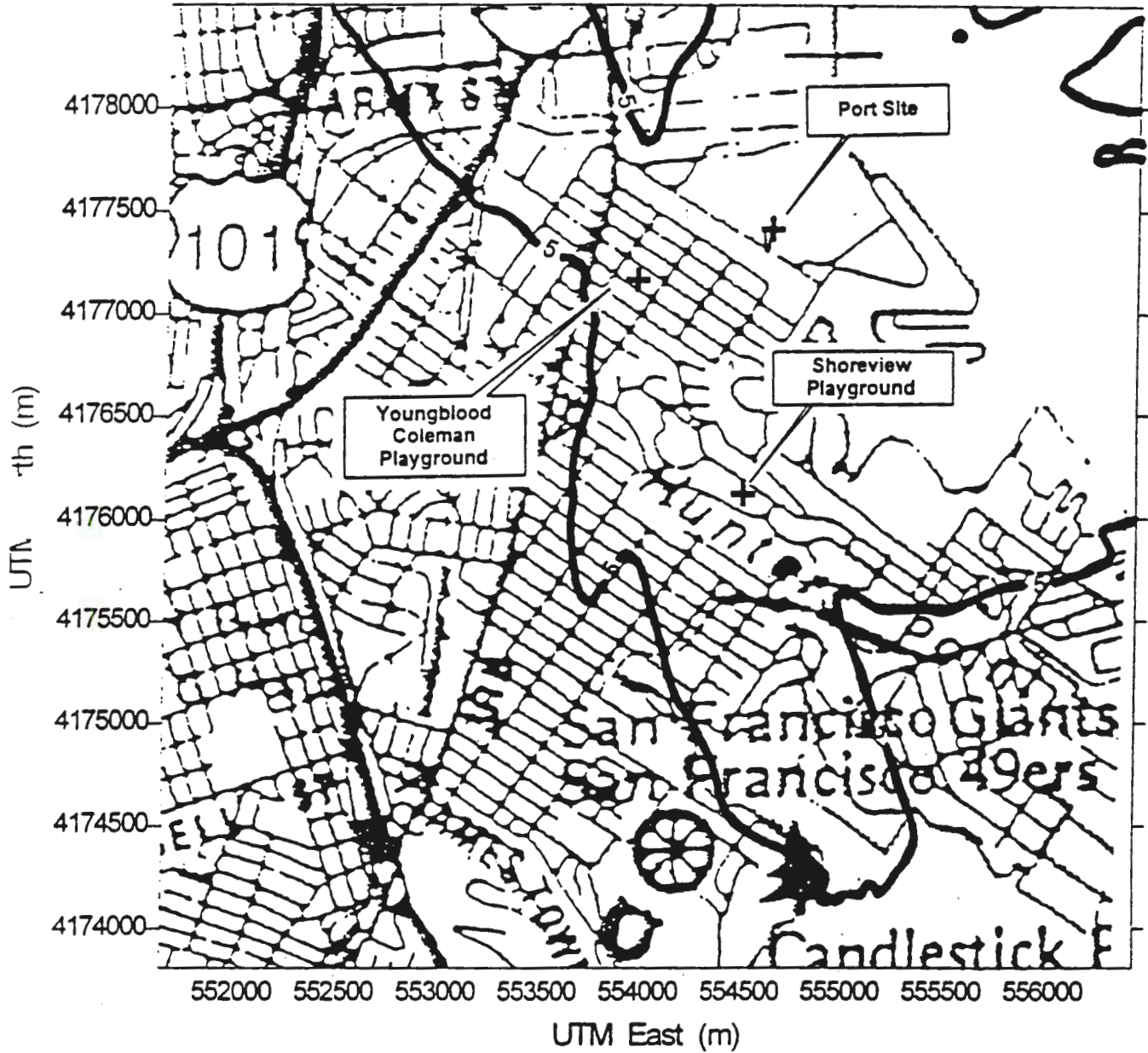
PM₁₀

Responding to community concerns, Staff investigated whether there were significant CEQA-based impacts from the project due to the state 24-hour PM₁₀ standard non-attainment status in the areas affected by project emissions and due to ozone levels in the East Bay. Staff concluded that the East Bay ozone impact was insignificant, but the Hunters Point PM₁₀ impact was significant if unmitigated. (7/20/95 RT 87:23-88:1; 88:9-13)

AIR QUALITY FIGURE 3

EFFECT OF PM10 MITIGATION ON AMBIENT PM10 LEVELS

24-hr avg. PM10 ($\mu\text{g}/\text{m}^3$): Port Site vs. Playgrounds



However, based on its own ELFIN model runs, Staff concluded that the PM₁₀ reductions in Bayview Hunters Point would not occur with the displacement of PG&E's Hunters Point Unit 4 and Potrero Unit 3. Rather, Staff stated that project PM₁₀ emissions were greater than PM₁₀ reductions caused by the partial displacement of PG&E's San Francisco generation in the Air Basin. (FSA, Vol. I, p. 135.)

Staff also believes that ELFIN modeling fails to provide evidence regarding localized emissions sufficient to support a decision whether or not to require localized mitigation. (7/20/95 RT 79:13) ELFIN simulates regional generation displacement, not a localized impact. ELFIN's predictions of emission reductions is expressed in tons per year (tpy) whereas the violation of concern is the state 24-hour PM₁₀ standard occurring for a limited time in the winter. Also, ELFIN's prediction that Hunters Point and Potrero will not come on-line cannot guarantee they will not be operated. Without an enforcement mechanism, which ELFIN cannot provide, the Staff could not recommend a particular measure, e.g., de facto offsets, as adequate mitigation. (FSA, Vol. I, p. 136.)

ii. PM₁₀ Mitigation

Thus, Staff wanted to consider all feasible mitigation measures to reduce the project's direct PM₁₀ emissions. Staff further believed that the mitigation should occur within the Bayview Hunters Point community or the hills to the west of Highway 101, near the project site. The three potential sources of PM₁₀ offsets from the BAAQMD Emission Bank are not near Hunters Point. Since the PM₁₀ violation occurred only in the winter, the mitigation should also be for that period. (AFC, Vol I, p. 140.)

In response to Staff, SFEC reviewed potential PM₁₀ offsets in the area and determined, in the absence of local stationary sources which could provide enforceable offsets, that fugitive dust control was the only potential mitigation. Staff then reviewed the adequacy of the resodding mitigation and, after consulting with the EPA, concluded the mitigation was acceptable. (7/20/95 RT 88:17-89:8) Staff acknowledges that there is some uncertainty about the exact level

of emission reductions which will be achieved by the mitigation, but is satisfied that CEQA does not demand absolute certainty in such matters. (Staff Br., p. 5.)

d. Intervenors

i. PM₁₀ Impacts

Intervenors assert that they have demonstrated two critical significant air quality impacts which have not been fully mitigated. First, the project's PM₁₀ emissions will cause significant health impacts and contribute to significant cumulative impacts, exacerbating a violation of the 24-hour state PM₁₀ standard. The proposed mitigation of playground resodding is insufficient. Second, the project's ozone precursor emissions will contribute to a violation of federal and state ozone standards in the East Bay. The proposed ozone offsets are not sufficient because they are not contemporaneous. (Intervenor Br. 31.)

The proposed project will emit a maximum 49 tpy of PM₁₀, 90 percent of which are combustion products. Intervenors assert that PM₁₀ emissions cause morbidity and mortality from asthma, chronic bronchitis and atherosclerotic cardiovascular disease. (Intervenor Br., p. 32.) Although acknowledging no **causal** link between PM₁₀ emissions and deaths, the Intervenors' witness nonetheless stated there was a statistical **association** which would lead to a 0.0045 - 0.0158% increase in mortality (2 to 6 deaths per year) due to the powerplant emissions. (9/12/95 Fairley, p. 6)

Intervenors presented Dr. Deborah Gilliss, a physician, who testified that research following CARB's adoption of the PM₁₀ standard in 1982 has consistently found no safe threshold for PM₁₀ exposure and that impacts are linearly proportional to exposure.⁹² Overall mortality is increased 1 percent for every 10 ug/m³ increase in PM₁₀ concentrations and 3-4

⁹² PM₁₀ is believed to cause illness due to its small size, allowing particles to be drawn deeply into the lungs. The project's stack emissions are about 1 micron in diameter, cooling tower emissions are about 2.5 microns in diameter, and geologic dust is larger.

percent for respiratory mortality. (7/21/95 RT 20:20-21:11 Quoting SFEC's witness, the powerplant's PM₁₀ emissions could disperse into the neighborhoods increasing concentrations of PM₁₀ up to 5 ug/m³. (7/21/95 RT 257:3-8)

Intervenors argue that the SFEC project should include dry cooling, which will eliminate the approximate 10 percent contribution (5 tpy) of the wet/dry cooling towers to overall project PM₁₀ emissions. Intervenors suggest that SFEC's claim that dry cooling is economically infeasible is not persuasive. (Intervenor Br., p. 35.)

ii. Dust PM₁₀ Not Equivalent or Sufficient

With regard to the playground resodding, Intervenors claim that it is not a suitable offset because; 1) the playgrounds were scheduled for resodding in the future; 2) playground dust is not equivalent to combustion PM₁₀ emissions; and, (3) even if there were equivalence, the amount of dust offsets from two playgrounds is insufficient to offset project emissions. (Intervenor Br., p. 35-41.)

Specifically with respect to equivalence, Intervenors' witness testified that there is uncertainty in the scientific community about the equivalence of dust particulates and combustion particulates. (7/21/95 RT 24:2-19) Intervenors acknowledge the possibility that the playground dust would have toxic contaminants in it which, without the resodding, would affect playground users. However, Intervenors assert the proposed mitigation results in health effects "trading" by allowing substitution of mitigation for non-project contaminants, such as lead, for direct project related contaminants such as PM₁₀. This would occur since resodding may stifle contaminants in playground soil but, it is argued, would not sufficiently offset the project emissions of PM₁₀. (Intervenor Br., p. 41.)

Intervenors agree that the current ambient PM₁₀ violations occur on cold, calm winter days following rain. Intervenors claim there will be no temporal correspondence between the emissions effect and the effectiveness of the mitigation because a wet playground in non-windy

weather would not emit dust. Additionally, people may not use the playgrounds under those conditions. (Intervenor Br., p. 42.)

iii. Ozone Offsets

With respect to ozone offsets, Intervenor argue that even though the District is in attainment for federal ozone standards, it is slipping back into non-attainment based upon 1994 and 1995 data. (Ex. 14; Intervenor Br., p. 47.) Intervenor claim that the possible future change in designation of the Bay Area to non-attainment also changes the environmental setting for the air quality review.

Intervenor argue that, with such a changed setting (and possibly without) it is inappropriate for SFEC and the Staff (and presumably the BAAQMD) to minimize the project's contribution in comparison to the contribution from all other Bay Area sources. (Intervenor Br., p. 49.) Intervenor cite *Kings County Farm Bureau v. City of Hanford*, (1990) 221 Cal.App.3d 692 for the principle that in a CEQA cumulative impact review significant cumulative impacts should not be ignored because a project's contribution to the whole is relatively small.⁹³ (Intervenor Br., p. 49.)

Additionally, Intervenor claim that the ozone offsets obtained by SFEC are inadequate because they are not contemporaneous. Intervenor attack the BAAQMD's programmatic scheme to comply with federal ozone standards as failing, particularly in allowing SFEC to obtain "banked" offset credits from a former Ford assembly plant in Milpitas which was closed as much as ten years ago. Past offsets will do nothing to abate future emissions in their opinion. (Intervenor Br., p. 51-52.)

⁹³ As to the application of *Kings County Farm Bureau v. City of Hanford*, (1990) 221 Cal.App.3d 692, SFEC states that all of the potential air quality impacts have been disclosed and, whether separately or combined, offsets for certain emissions, displacement of existing PG&E units, and BAAQMD programmatic reductions of ambient pollution result in no significant project or cumulative impacts from the proposed project. (Applicant's Br., p. 158-165.)

3. Commission Discussion

The Commission has examined the record on air quality in great detail. Additionally, the Commission has asked for supplemental testimony where the record was unclear or seemed inadequate. It is evident the SFEC's project has undergone rigorous review by the staffs of the BAAQMD and Commission as well as challenge by the Intervenors.

Within the context of the Clean Air Act New Source Review and comparable state review, SFEC, the BAAQMD and Staff are all in agreement that the proposed project complies with applicable air quality laws. Based upon concerns about localized impacts from PM₁₀, the Staff and Intervenors part company from SFEC and the BAAQMD and assert a CEQA-based significant impact requiring local mitigation. The Staff and the Intervenors, though, have differing views of the adequacy of resodding two local playgrounds to mitigate the project's PM₁₀ emissions. Intervenors further contest the determination by SFEC, the BAAQMD, and Staff that there are no significant ozone impacts.

The Commission will focus on these specific issues.

New Source Review and CEQA

In order to clarify the discussion regarding PM₁₀, one must realize that there are two arenas in which air quality impacts from industrial projects are considered.

The first arena is under the federal Clean Air Act and its regulations together with comparable California provisions in the Health and Safety Code. The BAAQMD administers both the federal and state laws in conducting a review of the project's compliance with applicable laws. The Commission does not conduct the Clean Air Act review because the federal Clean Air Act delegates permit review to only local Air Quality Management Districts. Since the project is located in the Bay Area, the BAAQMD conducts this "federalized" review as well as the state review and forwards its findings to the Commission.

The second arena is under CEQA, a state law, which requires a lead agency such as the Commission to review the environmental effects, including air quality impacts, of any proposed project. For determining the significance of an impact, the CEQA Guidelines provide:

If an air emission ... meets the existing standard for a particular pollutant, the Lead Agency [e.g., Energy Commission] **may presume that the emission ... will not be a significant effect on the environment.** (Cal. Code Reg., tit. 14, § 15064(i); Emphasis added.)

The BAAQMD has determined through its NSR under the Clean Air Act, Regulation 2-2-303 specifically, that the PM_{10} emission level does not trigger a requirement for offsets to mitigate the new emissions. This determination is associated with federal PSD requirements specifying that emissions added to a non-attainment area shall not prevent attainment of air quality standards.

Using the NSR air quality modelling coupled with its restrictions on what may be considered an emission reduction or offset, Staff concluded that the localized impact of PM_{10} would be significant and thus required mitigation pursuant to CEQA.

The Staff and Intervenors rely upon the remainder of the provisions of the CEQA Guideline section 15064(i), which provides:

If other information is presented suggesting that the emission ... may cause a significant effect, the Lead Agency shall evaluate the effect and decide whether it may be significant.

Staff's acknowledged imposition of mitigation for PM_{10} impacts was not required by the NSR. Staff contends that SFEC is required to mitigate PM_{10} emissions, in this case by resodding dusty public playgrounds.

The Commission must determine whether, in a CEQA context, the proposed project creates a potential significant PM₁₀ air quality impact requiring mitigation, as well as the sufficiency of any feasible mitigation.

The Commission's enabling legislation provides in pertinent part:

The commission shall compile relevant local, regional, state and federal land use, public safety, environmental, and other standards to be met in designing, siting and operating facilities in the state; except as provided in subdivision (d) of section 25402, **adopt standards, except for air and water quality, to be met in designing and operating facilities to safeguard public health and safety, which may be different or more stringent than those adopted by local, regional, or other state agencies, or by any federal agency if permitted by federal law...** (Pub. Resources Code, § 25216.3 (a).) (Emphasis added.)

Generally, the Commission understands this statutory prohibition to prevent imposition, even in a siting decision, of any air quality standard, directly or indirectly, more stringent than federal law enforced through NSR. Thus, the CEQA environmental review cannot become a mere expansion of the NSR.

In this respect, the Commission notes a significant difference in the universe of information allowed in the NSR and the CEQA review. In a sense, the NSR is more an arithmetic analysis to determine whether project emissions exceed certain levels and what would be the modelled effect on reaching another numerical standard. For the most part, there is a definitive "Yes/No" answer to whether a project meets these resultant standards. CEQA, on the other hand, is an informational process, encompassing a broad range of what may be considered an impact, as well as an informed, discretionary choice as to the significance of an identified impact. (Pub. Res. Code sec. 21002)

Most relevant to this proceeding, NSR's informational universe **does not allow consideration of any air basin reduction of emissions resulting from this project's de facto displacement of other electric generation resources.** This is so because, even though an

emission offset may factually occur from displacement of older utility facilities, it does not **legally** occur because there is no enforcement mechanism to ensure that the displaced facility will in fact operate less, or not at all.

CEQA, on the other hand, requires the Commission to take into account all relevant information. If displacement of older powerplants and reduction of their pollution will in fact occur, the Commission should not ignore that fact. In other words for a project otherwise in compliance with air quality laws, if CEQA Guideline 15064(i) directs consideration of information that there may be **more** impacts, then it also must encompass consideration of information showing that there may be **less** of an impact than the NSR analysis suggests. In this instance, there is information relevant to CEQA which was not within the scope of the NSR.

PM₁₀

Effectively, the NSR conducted by the BAAQMD appropriately considered all the factors concerning violations, project emissions, emission reductions, and meteorologic conditions in a manner least favorable to the project. Notwithstanding this, BAAQMD found the project would comply with all applicable laws and standards.

PM₁₀ Violations: There is no question that the District is non-attainment for the state 24-hour PM₁₀ standard of 50 ug/m³. The evidence of PM₁₀ violations in 1991, 1992, and 1993 at a variety of Bay Area monitoring stations initially suggested that there might be a trend of fewer annual violations at lower pollutant concentrations. However, 1994 data produced at the September 12, 1995, evidentiary hearing showed more violation days at higher concentrations than 1993. (9/12/95 RT 89:15-90:2; See AIR QUALITY TABLE 4.)

AIR QUALITY TABLE 4
PM₁₀ Violation Days In the Bay Area, 1989-1994

Year	San Francisco Arkansas St			San Leandro			Fremont		
	Highest 24-hour Average ($\mu\text{g}/\text{m}^3$)	Days above state std.	Months violations occurred	Highest 24-hour Average ($\mu\text{g}/\text{m}^3$)	Days above state std.	Months violations occurred	Highest 24-hour Average ($\mu\text{g}/\text{m}^3$)	Days above state std.	Months violations occurred
1994	93	6	NA	NA	NA	NA	NA	NA	NA
1993	69	5	Ju,N,D	51	1	N	77	3	N
1992	81	9	J,F,O-D	56	2	N	142	4	J,N
1991	109	16	J, O-D	99	10	J, O-D	92	14	J,O-D
1990	165	14	J,F,S-D	123	5	S,N,D	136	11	J,F,S, N,D
1989	101	14	M,Jn,O- D	--	--	--	77	5	O-D
California Ambient Air Quality Standard: 50 $\mu\text{g}/\text{m}^3$ (24-hour average) National Ambient Air Quality Standard: 150 $\mu\text{g}/\text{m}^3$ (24-hour average) Month abbreviations: J-January, F-February, M-March, Ap-April, Ma-May, Ju-June, Jl-July, A-August, S-September, O-October, N-November, D-December * Incomplete data collected.									

(Source: (CARB 1989-1993).)

However, the data also show that throughout the Bay Area there are somewhat similar PM₁₀ concentrations, with violations being reported on the same days,⁹⁴ almost exclusively in the winter months. (FSA, Air Quality, Appendix B; SFEC Table AQ-31, 2/14/95.) Additionally, the District-wide distribution shows that Bayview Hunters Point is not a PM₁₀ "hot-spot" with extraordinarily high ambient PM₁₀ levels.

This evidence confirms other testimony that PM₁₀ is a District-wide issue. (Rubenstein, pp. 5, 8) Also, for CEQA purposes, the Commission cannot unequivocally support the use of

⁹⁴ PM sampling is performed once every six days. The Commission is aware of the potentiality, therefore, that there are actually more violation days than are reported by the sampling.

only "worst case" data of the last 3 to 4 years on the ambient concentration of violations when the record suggests variability in ambient concentrations and variability in the number of days of violation. To use worst case data contained in the NSR would mischaracterize the broader environmental setting and mislead the public and Commission as to the nature of the air quality conditions which exist today and may exist in the future. The Commission believes that an average of the last three years would best characterize the ambient concentrations during a violation.

PM₁₀ Displacement: The NSR rules do not allow reduced emissions from older, more polluting PG&E facilities which will be displaced by the SFEC project to be considered enforceable as an offset. CEQA has no such limitation on the consideration of the displacement. Production cost modelling, using ELFIN, has been used and relied upon for years in the electricity industry, including the Commission forecasting and at PG&E. ELFIN modelling provides a picture of a utility system "with or without" any particular existing facility and/or proposed project from which emission displacement can be calculated. In this proceeding, there now is agreement that ELFIN modeling is not appropriate to predict localized air quality effects in Bayview Hunters Point. However, District-wide effects can be modelled. Thus, in the CEQA context, the information about the potential displacement of utility units appropriately describes the environmental *setting* and changes to it.

The SFEC ELFIN modelling included Hunters Point Units 2 and 3 (Units 2 and 3) as "must run" after 2001, the time PG&E indicated it would place the units in long term reserve. Units 2 and 3 were also shown to be operating above a 4 percent capacity factor and without the pollution control equipment which would be required by BAAQMD for continuing operation. (FSA, Vol. I, Air Quality Appendix F, p. 5) By making these older PG&E units operate longer than anticipated while emitting more pollution than would be allowed, SFEC's modelling results show more displacement than if Units 2 and 3 were removed from service in 2001.

The Staff ELFIN modeling used a more conservative approach, removing Units 2 and 3 in 2001 whether or not the SFEC project was constructed. On that basis, Staff's modelling

showed no displacement after 2001, leading to a conclusion that net emissions would be greater with the proposed project after 2001. Staff acknowledged that by not accounting for some other San Francisco-based generation to meet the San Francisco Operating Criterion (SFOC) after 2001 in the event the project is not built, its modeling underestimated the displacement of impacts. (FSA, Vol. I, Air Quality, Appendix F, p. 2.)

Modeling is only as good as the assumptions behind it. In this case, the parties modeled around an nearly inescapable conclusion if the SFEC project is not built, PG&E has no viable alternative other than repowering or retrofitting Units 2 and 3 in order to meet the local generation requirements of the SFOC in the forecasted period of need. Without the SFEC project, PG&E would keep Units 2 and 3 running. With the project, Units 2 and 3 would be removed from service because it is uneconomic to put expensive, new pollution control equipment on such old, inefficient units. Essentially, PG&E's repowering Units 2 and 3 is the only available option to provide generation to meet the SFOC.

Such repowering would likely take one of two forms. A single combustion turbine facility would generate approximately 200 - 240 MW in conjunction with existing steam turbines. This would be comparable to the 221 MW proposed project but for peak demand requirements only. The other option would be a twin combustion turbine facility, using both available steam turbines to generate approximately 440 MW, comparably to the SFEC project for baseload power, but twice the capacity. Without repowering, PG&E could retrofit the existing units with the air pollution control equipment enabling it to operate without restriction after 2001. One of these configurations represents what PG&E would likely construct to meet the SFOC if the proposed project is not built. In the absence of the project, there is no credible scenario which would create a zero emissions setting in Hunters Point.

The Commission cannot ignore the compelling potential event that without this project such a PG&E facility would be constructed and would have comparable or greater pollutant emissions. The Commission believes it would be misleading to assume an environmental setting which does not include some form of added local generation in San Francisco not later than

2001. If it is not SFEC, the likelihood is that it will be PG&E's repowering or retrofitting of Units 2 and 3.

Neither the SFEC nor the Staff ELFIN modelling took this into account to the satisfaction of the Commission. SFEC did include Units 2 and 3 past 2001, which could have served as a proxy for the repowering. However, SFEC continued Units 2 and 3 in their existing, more polluting configuration. Thus, emissions in 2001 and thereafter were over-estimated, thereby inflating displacement. Staff did not include a repower proxy at all, thereby under-estimating the displacement after 2001.

The Commission cannot perform its own ELFIN modelling in this context, but can derive from the modelling already performed sufficiently probative information. For this purpose, the Commission used Staff ELFIN modelling found in Air Quality Appendix F of the FSA. Staff's Table 3 of Appendix F represents the **difference** between the PG&E system **with** the SFEC project and **without** the project. The Commission will focus on NO_x and PM₁₀ within Table 3 since these are the pollutants at issue. Some of the important numbers are in TABLE 3 column "L" which represents the localized San Francisco displacement.⁹⁵

The Commission believes that the potential repowering of Units 2 and 3 must be accounted for, and the best information available suggests that, by sizing the repowering comparably to the proposed project, the net local displacement would be zero. In other words, whether the SFEC project is operating after 2001 or a PG&E repower project is operating after 2001, the emissions from one are going to be effectively equal to the other.

Thus, the Commission has reproduced certain columns of numbers from Table 3 and added a column to represent the Commission corrections. To correct "Staff S.F. Displacement"

⁹⁵ SFEC withdrew its testimony concerning ELFIN estimates of localized San Francisco displacement because it concluded ELFIN could not accurately predict such localized effects. Column "L" remained in Staff's Appendix F, indicating that after 2001 the effect of not having considered a potential repowering of Units 2 and 3 means added impacts rather than displacement.

(column "L" in Staff's Appendix F, Table 3), the Commission used zeros for the San Francisco displacement after 2001. These are shown in an adjoining column, entitled "Commission Correction." The other columns represent displacement within the BAAQMD (less San Francisco) and displacement of other fossil fuel-fired PG&E system generation outside the BAAQMD. The "Net Total Displacement" is calculated by adding the "Commission Corrections" to BAAQMD Displacement to "Other PG&E Displacement."

In AIR QUALITY FIGURE 4, the Commission's corrections to Staff's ELFIN modelling results shows that NO_x displacements of the PG&E system are substantial within and outside the BAAQMD.

In AIR QUALITY FIGURE 5, the Commission corrections show PM₁₀ displacement within and outside the BAAQMD after 2001. The data introduce some confusion regarding potential displacement from

AIR QUALITY FIGURE 4
MODIFIED APPENDIX: TABLE 3
Annual NO_x Outputs

YEAR	STAFF	COMMISSION MODIFIED	OTHER BAAQMD	OTHER PG&E	NET
1997	-158.7	-158.7	-152.8	-189.3	-500.8
1998	-91.8	-91.8	-161.4	-178.4	-431.6
1999	-106.3	-106.3	-126.3	-208.5	-441.1
2000	-66.7	-66.7	-234.4	-170.2	-471.3
2001	23.6	0	-141.6	-71.1	-212.7
2002	20.8	0	-200.7	-53.6	-254.3
2003	28.2	0	-160.4	-34.1	-194.5
2004	13.9	0	-151.0	-49.3	-200.3
2005	27.6	0	-34.3	-35.6	-69.9
2006	16.1	0	-45.5	-51.0	-109.8
2007	2.5	0	-58.8	-48.3	-107.1
2008	24.9	0	-36.6	-38.4	-75.0
2009	22.3	0	-36.1	-43.7	-79.8
2010	20.4	0	-37.2	-42.7	-79.9
2011	21.5	0	-34.3	-34.8	-69.1
2012	24.2	0	-36.7	-51.1	-87.8
2013	19.2	0	-38.6	-48.2	-86.8

AIR QUALITY FIGURE 5
MODIFIED APPENDIX F: TABLE 3
Annual PM₁₀ Outputs

YEAR	STAFF	COMMISSION MODIFIED	OTHER BAAQMD	OTHER PG&E	NET
1997	21.7	21.7	-4.2	-4.3	13.2
1998	37.1	37.1	-6.3	-6.2	24.6
1999	36.4	36.4	-6.0	-6.2	24.2
2000	36.9	36.9	-8.1	-6.3	22.5
2001	35.7	0	-8.7	-6.3	-15.00
2002	35.6	0	-10.3	-7.1	-17.40
2003	36.2	0	-9.2	-6.6	-15.80
2004	34.7	0	-10.0	-6.3	-16.30
2005	36.1	0	-7.4	-7.4	-14.80
2006	34.8	0	-9.2	-6.1	-15.30
2007	33.2	0	-10.0	-6.1	-16.10
2008	36.0	0	-7.6	-6.8	-14.40
2009	31.8	0	-6.7	-5.0	-11.70
2010	31.9	0	-6.9	-4.8	-11.70
2011	31.5	0	-6.6	-5.2	-11.80
2012	32.6	0	-6.7	-5.0	-11.70
2013	31.9	0	-7.0	-5.0	-12.00

1997, the year of initial project operation, through 2000. Examination of Tables 2 and 3 of Appendix F suggests that Staff anticipates, for local San Francisco impacts, that PM₁₀ emissions from Units 2, 3 and 4 and Potrero 4 will decrease, but there will be a net increase in emissions due to the operation of the high-output SFEC project.

Appendix F, Table 1 shows the project's emissions to be 44.3 tpy. This number is less than the total emissions considered in the New Source Review (49.7 tpy) because it assumes an 81 % capacity factor. However, it has the added effect of generating 240 MW, not 221.

Comparing Tables 1, 2, and 3 shows that beginning in 1998 with full years of operations until 2001, the local San Francisco PM₁₀ emissions from the project of 44.3 tpy cause the approximate displacement of 8 tpy in San Francisco, another 6 tpy within the Bay Area, and an additional 6 tpy in the PG&E system. Consequently, the total displacement is approximately 20 tpy during the initial years.

Importantly, all of the New Source Review air quality analyses have assumed project PM₁₀ emissions at 49 tpy. Yet, ELFIN modelling suggests that after displacement of 8 tpy from PG&E San Francisco units, net emissions from the project will be on the order of 36 to 37 tpy. Thus, while the SFEC project will add a level of PM₁₀ emissions to the San Francisco area, ELFIN modelled lower emission levels, combined with the infrequency of winds causing neighborhood dispersion, result in no significant air quality impacts.

PM₁₀ Violation Contributors: The BAAQMD prepared a pie-chart to show the emission contributors to PM₁₀. (See AIR QUALITY FIGURE 1) The graph shows that the largest single contributor is wood smoke (40%), followed by nitrate (33%), motor vehicle exhaust (10%), geologic dust (8%), sulfate (4%), marine air (2%), and other (3%). Stationary industrial sources are not shown as a separate contributor to ambient PM₁₀. As a class, industrial sources like the proposed powerplant are minor contributors to ambient PM₁₀. (Rubenstein, pp. 8-9)

The record reflects that PM₁₀ violations generally occur during winter months, between rain storms, with nearly calm winds. (7/20/95 RT 90:16-20) As the Intervenor's line of cross-examination suggested, such conditions are not conducive to the movement of fugitive dust. Reading BAAQMD's PM₁₀ pie-chart in light of the tendency of winter rainstorms to suppress dust, particularly in the absence of wind, the Commission concludes that most of the non-wood smoke contributors remain essentially constant. So, in periods of winter violations, the level of wood smoke is the most significant changing factor which, combined with unique weather conditions, results in a violation of the state 24-hour standard.

Community Topography: The Commission compared the Staff's PM₁₀ isopleth of maximum concentrations to a topographical map which revealed that the locations of elevation are mostly west of Highway 101. Comparing the topographical map to the color aerial survey map (AFC, Figure 3.10-1) further reveals that hilltops which represent the points of maximum PM₁₀ concentration are not developed with residences. Some are completely undeveloped or are parks, such as McLaren Park and Golf Course. If the suggestion in the Intervenor's line of questioning is correct that parks are generally not used after winter storms, then the locations of maximum concentration on the isopleth will not have human receptors there to breathe airborne PM₁₀ during the winter worst-case. Admittedly, there may be PM₁₀ which is nonetheless deposited on the ground or ground-cover which may be kicked-up during other times of the year; however, whatever was deposited has become part of the fugitive dust.

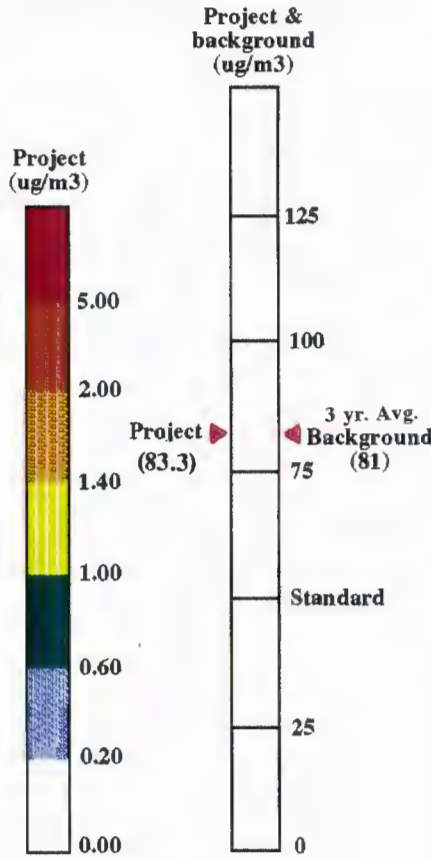
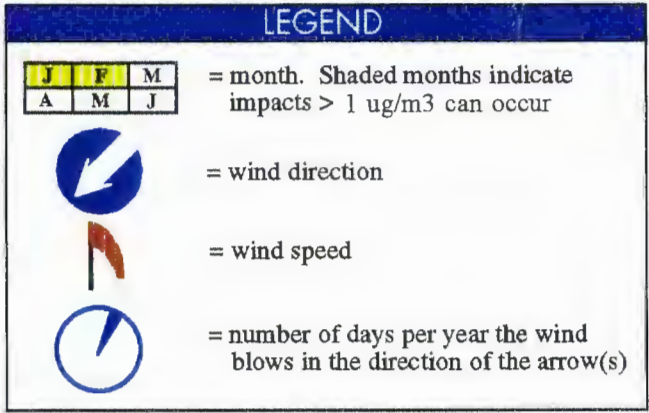
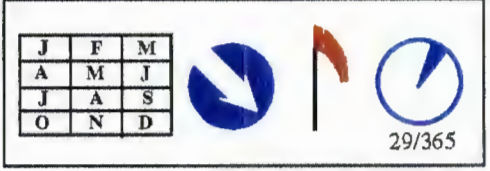
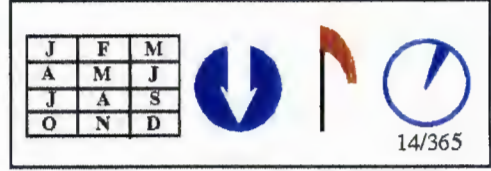
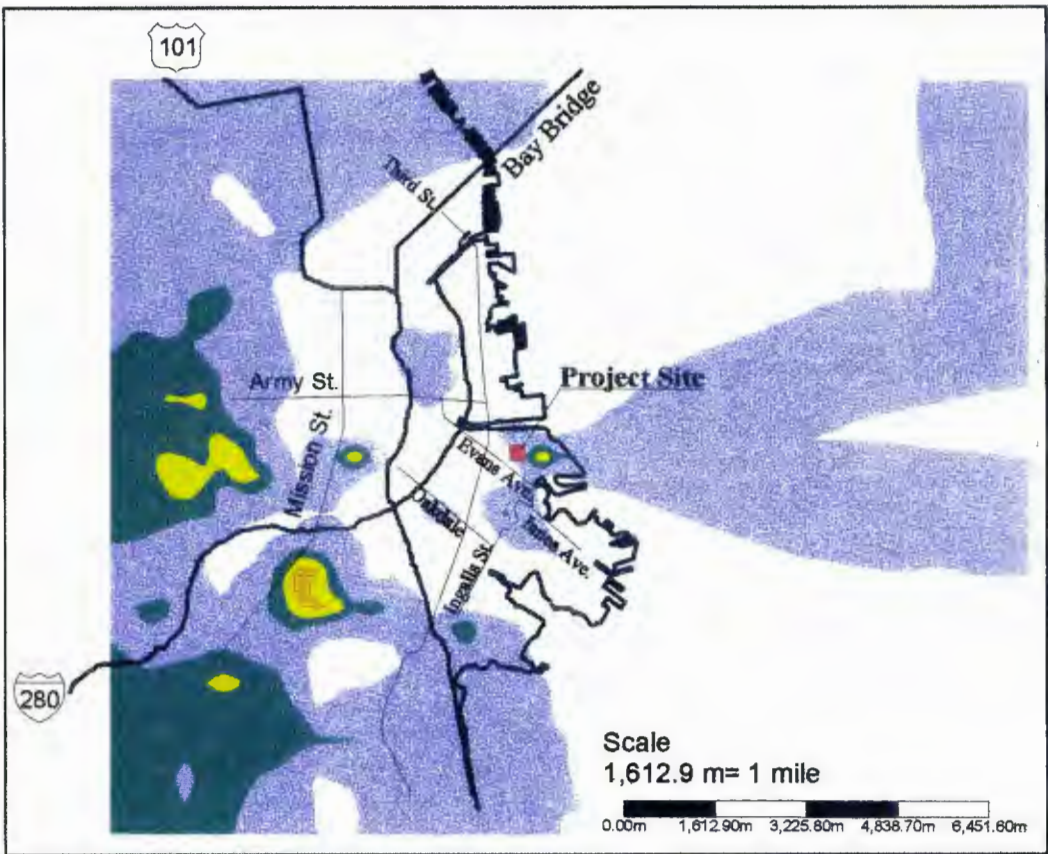
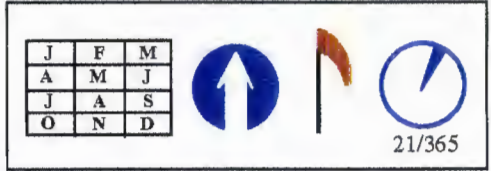
Project Emissions: The consistently predicted level of combustion PM₁₀ emission from the project is approximately 2.2 to 2.3 ug/m³. Although there is testimony to the effect that the project contribution could be up to 5 ug/m³, the record suggests that such an amount was derived from the EPA's Level of Significance for PM₁₀ at 5 ug/m³ and represented an upper limit of PM₁₀ emissions, not a predictor of the expected project emissions. (FSA Vol. I, Air Quality Table 18; Figure AQ-ISO-3)

Commission Graphic: Using information from the evidentiary record, the Commission has prepared a graphic display which combines the location and concentration of project PM₁₀

emissions and the frequency and season of such concentrations based upon certain wind directions and speeds. Understanding the complex air quality analyses which use data and modelling is very difficult but essential to result in an informed conclusion about the degree of air quality impacts in Bayview Hunters Point. Consequently, the Commission's pictorial representation of that complex data and modelling enables a reader to see the project's PM_{10} emissions effects on virtually any area of the City or the Bay. (AIR QUALITY FIGURE 6).

The central map and isopleth show maximum concentrations of PM_{10} emissions based upon winds throughout the year. Color intensity indicates increasing concentration. The predicted maximum concentration for any location in Bayview Hunters Point is approximately 2.2 to 2.3 ug/m^3 . Additionally, the Commission notes that the dispersion modelling used in predicting the maximum concentrations tends to over-predict in this instance for two reasons. First, dispersion models are by nature conservative. Second, the dispersion model for flat ground does not work for hilly terrain; consequently a portion of the concentration is predicted by a second conservative model for complex, elevated terrain. The models create a grid of 4,000 squares with a value calculated for each square.

San Francisco Cogeneration Maximum Project 24-hr PM₁₀ Emission Impacts (ug/m³)



In addition, the icons represent other important information. Based upon annualized San Francisco wind rose data, the Commission calculated the direction, frequency (how often) and speed of winds for all sectors surrounding the project. The direction is shown by the arrow, with the wind blowing in the same direction as the arrowhead. The frequency of winds blowing in the direction of the arrowhead is depicted in the pie chart by the shaded portion representing the number of days per year. The wind speed is shown by the windsock for low, moderate and high winds. A calendar is provided, with the shaded months showing the months, and thus periods, in which the wind blows in the direction indicated by the arrowhead.

What does the graphic mean? Without question, wind direction is the single most important factor in determining **where** a direct PM_{10} emission impact will occur. The data clearly show that winds blowing toward the east and northeast blow emissions away from Bayview Hunters Point for 244 days of the year. A "downwash" phenomenon near the project occurs during high winds which create an "eddy" behind taller downwind buildings thus taking emissions to ground. Northerly and southeasterly winds generally take project emissions out of the Bayview Hunters Point area.

Interestingly, elevated areas (hills) receive the maximum PM_{10} concentration. Generally speaking, winds blowing from the northeast across the project toward McLaren Park would create the highest potential concentration of PM_{10} , but that concentration is relatively low. Moreover, the frequency with which McLaren Park would be the point of maximum concentration⁹⁶ ($2.3 \text{ ug}/\text{m}^3$) would be for 18 days per year, with those days occurring in the winter months of December, January and February. Bernal Heights would receive lower maximum concentrations for 14 days per year, also in the winter months. Winds blowing from the southeast would create even lower concentrations of PM_{10} emissions on Potrero Hill.

This information demonstrates that fears that all 49.7 tpy of PM_{10} emissions will be concentrated in a certain area of Bayview Hunters Point are unfounded. Based upon wind

⁹⁶ AIR QUALITY FIGURE 6 shows predicted levels up to $2.0 \text{ ug}/\text{m}^3$.

direction, both the McLaren Park area and Bernal Heights Park cannot be impacted at the same time, and the maximum any portion of the Bayview Hunters Point can be directly impacted is 21 days per year. The proportion of 21 days to 365 days means that using that ratio no single area would be exposed to more than approximately 3 tpy of the total 49.7 tpy.

Project Impacts Not Significant: Put simply then, the key question is whether the project specific addition of PM₁₀ emissions in the Air Basin, which is non-attainment for the state 24-hour PM₁₀ standard, is a *significant* impact. This inquiry applies to both potential project specific impacts and potential cumulative impacts. The Commission finds that adding new project-specific emissions in a non-attainment area for the state 24-hour PM₁₀ standard is not *per se* significant. The Commission also finds that the weight of the evidence presented supports the conclusion that the project, itself, will not have a significant net impact.

In reaching these decisions, the Commission notes that it has reviewed and considered the enunciation of CEQA principles set forth in *Kings County Farm Bureau v. City of Hanford* ((1990) 221 Cal.App.3d 692 [270 Cal.Rptr., 650].)

In that case, the Court found that in the CEQA review of a coal-fired cogeneration powerplant, the Environmental Impact Report (EIR) impermissibly separated the powerplant's combustion emissions from emissions resulting from the necessary truck transportation of coal to the facility. The impermissibility of the separation arose since the EIR declared the powerplant, itself, produced such a small incremental addition of emissions in relation to an existing violation of air quality standards that there was no significant project impact.

Given CEQA's goals of informed decision making and meaningful public participation, the separated combustion and transportation emissions could not provide a clear picture of the total impacts of the project. Thus, the CEQA review was legally inadequate. Importantly, the Court's decision did not hinge on whether, if the emissions had been combined, the EIR was right or wrong in finding no significant impact:

CEQA requires an EIR to reflect a good faith effort at full disclosure; it does not mandate perfection, nor does it require an analysis to be exhaustive. (Guidelines, § 15151.) Although disagreement among experts does not render an EIR inadequate, the report should summarize the main points of disagreement. The absence of information in an EIR, or the failure to reflect disagreement among the experts, does not per se constitute a prejudicial abuse of discretion. (Pub. Resources Code, § 21005.) A prejudicial abuse of discretion occurs if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process. (270 Cal.Rptr., 650, 657.)

The project developer in *Hanford* had previously obtained the necessary air quality permits for the powerplant itself from the Kings County Air Pollution Control District (KCAPCD), and on that basis asserted that there were no significant air quality impacts from the project. The air basin was in violation of state 24-hour PM₁₀ standards, and the EIR's failure to account for the truck transportation emissions meant the documentation was misleading. (270 Cal.Rptr. 660) While acknowledging that the KCAPCD rules are designed to analyze emissions from narrowly drawn sources, the Court stated:

The requirements of CEQA cannot be avoided by chopping up a proposed project into bite-size pieces which, individually considered, might be found to have no significant effect on the environment. (270 Cal.Rptr. 660)

However, on the other hand, the Court also stated that the fact on-site and secondary emissions combined would exceed KCAPCD's offset levels **cannot** be used to invoke a presumption that the project will have a significant impact on air quality. (270 Cal.Rptr. 660)

As to ozone, the Court characterized the EIR's analysis as follows:

The DEIR concludes that the project's contributions to the ozone levels in the area are immeasurable and, therefore, insignificant because the plant would emit relatively minor amounts of precursors compared to the total volume of precursors emitted in Kings County. The EIR's analysis uses the magnitude of the current ozone problem in the air basin in order to trivialize the project's

impacts. In simple terms, the EIR reasons the air is already bad, so even though emissions from the project will make it worse, the impact is insignificant.

The point is not that, in terms of ozone levels, the proposed Hanford project will result in the collapse of the environment into which it is to be placed. **The significance of an activity depends upon the setting.** (270 Cal.Rptr. 661) (Emphasis added.)

The Court provided guidance in considering the contribution of a single project to a serious preexisting condition:

The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in the air basin. (270 Cal.Rptr., 661.)

In the *Hanford* case, the Draft EIR, which found the ozone and PM₁₀ emission of the project to be insignificant *as the project impacts*, found that cumulative impacts of ozone and PM₁₀ were potentially significant. Comments from the public on the Draft EIR suggested that there was an inconsistency between the findings of insignificance of project-specific impacts on one hand and potential significance of cumulative impacts on the other.

In responding comments, the Final EIR had stated in relevant part:

A question must still be answered as to whether the *incremental effects of an additional project* are considerable when viewed in connection with effects of other projects. (270 Cal.Rptr. 661)

The challenge to the EIR focused on the concept that so long as the specific project impacts are found to be insignificant the corresponding cumulative impacts would never be significant because the 'incremental effects' of the project would never be considerable. The Court found the use of this "ratio" approach - the greater an overall problem, the less significant

a single project contribution - improperly ignored the aggregating effect of such small single contributors:

We conclude the standard for a cumulative impacts analysis is defined by the use of the term "**collectively significant**" in Guidelines section 15355 and the analysis must assess the collective or combined effect of energy development. The EIR improperly focused upon the individual project's relative effects and omitted facts relevant to an analysis of the collective effect this and other sources will have on air quality.⁹⁷ (270 Cal.Rptr. 662)

The "collective significance" of the project and ambient PM₁₀ emissions needs to be viewed in the context of existing stringent state PM₁₀ standards and recent scientific literature. There is no question that PM₁₀ is emerging as a focal point for concerned scientific inquiry on whether its health effects have been underestimated. To some degree, the emergence of PM₁₀ as an issue is due to the progress made on controlling the criteria pollutants initially believed to be the culprits, while persistent, lingering health effects appear to remain.

⁹⁷ CEQA Guidelines (15064(e) referring to Appendix (G)) provide:

A project will normally have a significant effect on the environment if it will:

...

(x) Violate any ambient air quality standard, **contribute substantially** to an existing or projected air quality violation, or expose sensitive receptors to **substantial** pollutant concentrations. (Emphasis added.)

Also, the *Hanford* Court held,

The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether **any** amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in the air basin. (270 Cal.Rptr., 661.) (Emphasis added.)

There is a body of recent epidemiological studies which associates increases in mortality with chronic (long term) exposure to urban concentrations of particulate pollution, especially fine (smaller) particulates. (Ex. 22, 23 & 24) Those researchers acknowledge that an association between particulate pollution and mortality does not demonstrate a *cause and effect* between the particulate pollution and the mortalities. Also, the statistical methods used may be unable to screen out other influencing factors. (Ex. 22, p. 457; Ex. 23, pp. 115, 116, 128, 129; Ex. 24, p. 341)

The State of California, through CARB, has taken action independently of the federal government in establishing more stringent, health-based air quality standards. The state and federal PM₁₀ standards are shown below:

	STATE	FEDERAL
24-HOUR	50	150
ANNUAL	30	50

Intervenors called Dr. David Fairley, a BAAQMD employee testifying on his own time. Dr. Fairley seeks a greater recognition of the potential health effects of PM₁₀. Understanding the types of PM₁₀ issues before the Commission and the necessity of making a decision, Dr. Fairley stated that denying project certification was not the only option the Commission has in order to prevent any potential PM₁₀ health impacts. (9/12/95 RT 149:15-152:21)

Dr. Fairley believes that the state 24-hour PM₁₀ (50 ug/m³) standard may not be achievable. With wood smoke and vehicle exhaust the largest contributors during winter violations, the measures which are necessary to reduce PM₁₀ would cause major societal changes in lifestyle, including likely restrictions on fireplace burning and wintertime driving. Dr. Fairley acknowledged that the imposition of such measures centered on political feasibility, rather than on a consensus in the public health profession that such measures are necessary. Dr. Fairley believes that once the public is informed about the currently asserted public health risks from

PM₁₀, the necessary societal political will to change lifestyles can be expected to follow.
(9/12/95 RT 158:10-159:20)

The Commission's finding of no significant impact is not to minimize the concern of Dr. Fairley, the Intervenors, and others about PM₁₀. Rather, the Commission's legal duty under these circumstances is to evaluate the impacts of this project according to applicable law. By law, the Commission cannot establish more stringent PM₁₀ standards; that is within the purview of other state and federal agencies.

Cumulative Impacts

CEQA's purpose in a cumulative impacts review is to assess a proposed project together with "reasonably foreseeable probable future projects" to avoid the myopic perspective of individual projects having only a small incremental effect. Both SFEC and Staff conducted cumulative impact analyses.

The timeframe for "reasonably foreseeable" can be measured by when another project Applicant files with the BAAQMD for a permit. Since such an application will necessitate air dispersion modeling for District review, those modeling inputs can also be used for the cumulative impacts modeling. Thus, the projects reviewed for cumulative impacts were either just built, under construction, or subject to BAAQMD review.

Staff usually analyzes future projects within 6 miles of the project site. (FSA, Vol. I, p. 120) SFEC included all projects within 8 miles of the site; this resulted in analyzing seven other projects, plus its cogeneration facility, in its cumulative modeling.⁹⁸ The results of the Staff's cumulative modeling analysis are shown below:

⁹⁸ Four of the projects included in the cumulative impacts analysis were issued Permits to Operate in 1993, meaning that they may have been in operation during periods of violation in 1993, which recorded a maximum background of 109 ug/m³. By using 109 ug/m³ as the starting point to which to add emissions from future projects, both SFEC and Staff likely double counted these 4 projects, adding to the conservatism of their results.

Cumulative Maximum Impacts - Port Site

Pollutant	Averaging Period	Cumulative Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	1-hour	31.8	188	220	470	47
	Annual	0.2	45.1	45	100	45
SO ₂	1-hour	2.2	105	107	655	16
	24-hour	0.6	42	42	118	36
	Annual	0	5	5	80	6
CO	1-hour	20.4	10350	10370	23,000	45
	8-hour	8.3	7935	7943	10,000	79
PM ₁₀	24-hour	16.0	109	125	50	250
	Annual	0.1	29.7	29.8	30	99

Source: FSA, Vol. I, AIR QUALITY TABLE 24

Like the project-specific impacts, the cumulative impacts of the eight projects would not create a violation of any NO₂, SO₂ or CO ambient air quality standard, or the annual average PM₁₀ standard. Also, like the project-specific impacts, the table shows that the cumulative impacts can add to the existing violation of the state 24-hour PM₁₀ standard.

The Commission is concerned about the cumulative PM₁₀ emissions. Other than the proposed powerplant, the facilities considered in the cumulative impact analysis included a rotary dryer, rock crusher, three cremators, and two small boilers (all with District Permits to Operate) as well as a small boiler, cremator, and small furnace (all with District Authority to Construct permits). Like the proposed project, each of these facilities appears to be below the threshold for PM₁₀ offsets. Unlike the proposed project which will displace PG&E units, the record is devoid of any information whether these facilities replaced and therefore displaced any pre-existing operations. If there is no displacement and no sizable double counting of other projects,

the aggregated PM₁₀ emissions could be significant since they may exceed the displacement benefits of the SFEC project. However, any significance in cumulative impacts is due to increasing the "ratio" of incremental impacts to the ambient conditions and is not due to any change in the setting as described for project-specific impacts.

The combined offsets and displacement benefits from the project related to precursors of secondary PM₁₀ clearly exceed the emissions from the other projects. The Commission finds that adding cumulative project emissions in a non-attainment area for the state 24-hour PM₁₀ standard is not *per se* significant. The weight of the evidence presented supports the finding that the cumulative, net impacts will not be significant.

Consistency with Past Decisions

In 1992, the Commission conducted the regulatory review of the Crockett Cogeneration project, which was a 240 MW combined cycle cogeneration facility at the C&H Sugar Refinery in Crockett, California (Docket No. 92-AFC-1.) There are important similarities between these proceedings beyond the type of facilities. Both the Crockett project and the SFEC project are located in the BAAQMD and near residential communities⁹⁹.

Both projects are within the BAAQMD, and the non-attainment of the state 24-hour PM₁₀ standard applies to both air quality reviews. In the Commission's review of similar impacts, the Commission's Crockett Decision (p. 46) provided:

Furthermore, while the evidence indicates that the project will contribute locally to increasing PM₁₀ levels, it is also clear from the evidence that the contribution is insignificant. [Intervenor] made reference to a study of PM₁₀ by David Fairley [sic] to apparently argue the PM₁₀ impacts from the project would cause a significant environmental impact. In addressing this concern, Mr. Rubenstein pointed out that the study seemed to identify wood stoves and automobiles as the

⁹⁹ In actuality, the former SFEC site at Innes Avenue is more comparable to the Crockett project on the basis of proximity to residential neighborhoods. By comparison, the Port site is more distant from the neighborhoods.

reason for the apparent PM₁₀ problem and that, based upon a conversation with the author, the study was only relevant to PM₁₀ conditions in the San Jose area. Staff witnesses supported this conclusion regarding PM₁₀ stating that the reduction in precursors from the project¹⁰⁰ was such that no significant impact would occur. CEC Staff witness Franco viewed [the Intervenor's] concern that inadequate attention had been given to PM₁₀ as "incorrect." Witnesses for BAAQMD and the Applicant made clear that PM₁₀ is a regional problem which must be addressed on a district-wide basis and that the District's retrofit requirements will eventually reduce local PM₁₀ levels, whether or not the Crockett project is built.

In this instance, the Commission believes that the Crockett project and SFEC project are sufficiently similar in the factual setting and the applicable law that similar results are warranted.

Ozone

Intervenors contend that 1994 - 1995 ozone violations (Ex. 14) will result in the change of the District's status of attainment to non-attainment, thereby making the project's cumulative air quality impact significant. At this point, the Commission finds the potential for such a change to be speculative. In any event, since NO_x is the principal precursor to ozone, the NO_x offsets satisfy the NSR requirements. Therefore, NO_x offsets plus displacement of existing PG&E facilities will avoid any significant ozone impact from the project.

Intervenors also argue that the offsets are not contemporaneous and should not be useable since the emission credits are from sources which have been closed for many years. The Commission acknowledges that, taken in isolation, the construction of a new emission source using offsets from a former source long since closed seems to be a net negative for cleaner air. However, the statutory regimen seeks to achieve the reasonable co-existence of cleaner air and economic development. Thus, the NSR rules comprise a comprehensive program to

¹⁰⁰ The Crockett project caused the retirement of existing C&H boilers thereby offsetting some of the effect of the project's emissions, including PM₁₀.

incrementally and continuously improve ambient air quality through the use of BACT, retrofit rules, and offset ratios greater than 1:1. The ultimate effect will be a gradual reduction in, and replacement of, sources polluting at impermissible levels. Such improvement may be gradual, but gradual improvement is the course imposed by law. To do as Intervenor's request, the Commission would have to abandon long-established federal and state policies.

Playgrounds as Mitigation

Responding to Staff's assertion that local PM_{10} mitigation would be required, SFEC began such a search. Without any local sources of combustion PM_{10} mitigation, SFEC offered fugitive dust mitigation instead. SFEC calculated the level of mitigation which could be provided by resodding two public playgrounds in Bayview Hunters Point and submitted the mitigation to the Staff. Staff reviewed and approved SFEC's proposal for both equivalence of pollutants and level of mitigation.¹⁰¹

The Intervenor's challenge the use of the playground mitigation for the reasons previously set forth. By Intervenor's calculations adequate mitigation will require the resodding of 170 comparable playgrounds or parks. The Intervenor's, having thus critiqued the resodding proposal, nonetheless do not want to see it withdrawn.

The Commission believes that the resodding proposal is appropriate as community enhancement, not as a mitigation measure. Were such resodding necessary as an offset, the Commission would have found that there was sufficient equivalence to afford a health benefit as mitigation. Additionally, the calculations of the amount of dust to be used as mitigation are imperfect. The Commission examined a San Francisco map and found there are not 170 parks and playgrounds in the City, let alone those requiring resodding. Additionally, based upon

¹⁰¹ The Commission used fugitive dust to mitigate combustion emissions in the Luz SEGS projects where combustion mitigation was unavailable in the high desert. (Docket No. 89-AFC-1)

additional testimony, there do not appear to be sufficient pivable areas to be equivalent to 170 playgrounds. Resodding or abatement at that level is infeasible and inappropriate.

Cooling Tower

The cooling tower emits about 10 percent of the projects total PM_{10} , or about 4.5 tpy. Unlike combustion particulates, the cooling tower particulates come from suspended particles in the cooling water which are circulated and then ejected from the cooling tower. Staff has found that these particulates do not pose the health risk ascribed to combustion PM_{10} . Additionally, given that the mechanical process which makes the cooling tower particulates airborne is different from that for the combustion particulates, the area which is affected by cooling tower PM_{10} is different from that affected by combustion PM_{10} .

Intervenors suggest that the cooling tower PM_{10} can be eliminated by switching to dry cooling. SFEC stated that it has already proposed an advanced form of wet/dry cooling to reduce plume visual effects and to reduce drift. It had rejected dry cooling mainly due to costs and inefficiencies. The Staff conducted a review of dry cooling as an alternative to the hybrid wet/dry cooling in the project design.

Cooling is necessary to increase the efficient use of steam. The same steam will do more "work" while passing through the steam turbine if there is a large temperature drop from the front to the back of the turbine. The smaller the temperature difference front to back, the less efficient the powerplant is and the less electricity is created from the same amount of fuel. Dry cooling is like a giant radiator. Unlike an automobile radiator which uses ram air while the car is moving forward, the dry cooling tower must create moving air through the use of very large fans. Those fans are so powerful that they consume a considerable amount of the electricity generated by the powerplant itself.¹⁰²

¹⁰² Dry cooling is used at the Crockett Cogeneration Project.

The Commission has considered the use of dry cooling for the SFEC project as PM₁₀ mitigation, but has not mandated its use for two reasons. First, having found that the net air quality impacts are not significant from both the combustion turbine and the cooling tower, further mitigation is not necessary. Second, due to size and constituents, cooling tower PM₁₀ emissions are not the same health concern as combustion emissions. Consequently, the added capital cost of approximately \$4 million or more combined with the added fuel and emissions necessary to generate the same level of electricity make dry cooling unwarranted under these circumstances.

Mobile Sources

The Commission conducted additional hearings in September 1995 to complete the review of PM₁₀ mitigation including mobile offsets from buses and heavy trucks. Staff contacted San Francisco Muni; Norcal, the operator of Golden Gate Disposal and Sunset Recyclers; and Laidlaw Transport, the operator of the San Francisco Unified School District school buses.

Diesel engines are subject to CARB and federal EPA requirements which have substantially lowered emissions and require at rebuild or replacement the updating of the engines to the current pollution control technology. As such, there are relatively few emission credits available from these mobile sources by providing new engines before the old ones need to be replaced. Moreover, those credits would last only as long as the difference in time from when new engines were provided and when the old engines would have been replaced.

There are 455 diesel buses at Muni. The cost to install new diesel engines in all current diesel buses would be approximately \$9.1 million. Upgrading all engines to 1996 standards would reduce fleet emissions of PM₁₀ by 18.1 tpy. Emission credits would not likely extend beyond 5 years when present engines are to be replaced. Moreover, there are concerns at Muni about shifting to alternate fuel vehicles, such as natural gas, because Muni's practice is to operate the buses all day and change drivers in the field. The fuel carrying capacity of the buses

would not allow that practice for natural gas powered buses. (9/12/95 Golden Supp., pp. 2,3)

Norcal uses 440 diesel trucks daily. If the entire fleet were retrofitted with new engines, PM₁₀ emissions would be reduced by 50.5 tpy. The cost would be approximately \$8.8 million. This PM₁₀ credit would last from 2 to 4 years. (9/12/95 Golden Supp., pp. 3,4)

Laidlaw Transportation operates 230 school busses which use a variety of engines. If all engines were capable of being upgraded the PM₁₀ emission reduction would be 1.4 tpy. The cost would be \$4.6 million. These credits would last approximately 10 years. (9/12/95 Golden Supp., pp. 4,5)

The Commission finds that the types of mobile offsets which are potentially available are not of sufficient duration in time to warrant further consideration. Additionally, the cost to install new engines appears to outweigh the benefits. Since the Commission has found no significant PM₁₀ impacts from the project, and due to the short duration and economic costs, mobile offsets are not required.

Other dust

The Commission conducted additional hearings in September 1995 to complete the review of PM₁₀ mitigation including other fugitive dust sources. Staff contacted four potential sources of dust offsets; three are aggregate or concrete businesses, the fourth is an auto wrecking yard. Staff found little offset opportunity from these sources. Two of the aggregate yards have dust control efforts. The auto wrecking yard is mostly covered with scrap metal, with few areas of traffic. (9/12/95 Golden Supp., pp. 6,7)

These specific potential opportunities had been discussed in earlier Staff workshops but not addressed in the initial evidentiary hearings. After Commission review at the September evidentiary hearings, these facilities do not appear to offer sufficient opportunities for additional substantial dust control to warrant further consideration.

Construction Impacts

Construction activities will involve the use of equipment causing combustion and hydrocarbon emissions, as well as activities which produce fugitive dust. SFEC modelled these air quality effects and the results were reviewed by the Staff. SFEC proposes to use clean fuels and schedule equipment operation to limit idling time. For fugitive dust control at the site, SFEC proposes to use water truck spraying, chemical dust suppressant, and covering of storage pile or inactive disturbed surfaces. For dust control for trenching in City streets, SFEC will pre-water the soil being excavated, use water trucks on streets, and water exposed areas. SFEC has modeled emissions during construction and concluded that there are no significant effects. (FSA Vol. I, p. 126)

Staff reviewed SFEC's modeling and agrees with all conclusions except those pertaining to PM_{10} . Without further mitigation, Staff believes there will be excessive construction fugitive dust. Therefore, Staff suggested a range of additional measures to limit construction site dust, including preparation of a comprehensive fugitive dust plan, hiring a dust monitor, treating newly disturbed areas promptly, and abating tire transported mud onto City streets. SFEC accepted Staff's suggested mitigation proposals. Staff considers the PM_{10} impacts from construction as unavoidable, short term (3 months) impacts which are common to all construction projects. (FSA Vol. I, pp. 131, 137-138)

Based on the record, the Commission finds that the construction impacts will have an insignificant air quality impact due to the short duration of the activity and the enumerated mitigation measures.

Start-Up

There will be a brief start-up period during which the project will be operated initially without pollution control equipment to allow the turbine and each succeeding element of the

facility to be tuned and adjusted to perform to its specifications. During the unabated period, the facility will emit pollution in excess of the limits established by law and the District's Determination of Compliance.¹⁰³

SFEC has reviewed the start-up procedure and suggested to the BAAQMD 12 additional permit conditions to address start-up air quality concerns. These additional conditions would limit the start-up period to 45 operating days, limit operation without SCR and the oxidizing catalyst system to 180 hours, and continuously monitor emissions from the stack. No change in PM₁₀ rates is expected during start-up, but SFEC proposes to lower the turbine PM₁₀ rate by one pound per hour. (9/12/95 RT 317:11-318:22) With the added conditions, the Staff concurs that there will be no significant air quality impacts from project start-up. (9/12/95 RT 326:25-328:6)

With the imposition of the added conditions, the Commission finds that the project will not produce significant start-up air quality impacts.

FINDINGS AND CONCLUSIONS

Based upon the evidence of record, and assuming the implementation of the Conditions of Certification and the conditions of the BAAQMD Determination of Compliance, the Commission finds as follows:

1. The Bay Area Air Quality Management District has issued a Final Determination of Compliance concluding that the project complies with all laws, ordinances, regulations and standards pertaining to air quality.
2. The conditions of the Final Determination of Compliance are substantively identical to those contained in this Decision.

¹⁰³ During the hearings on this proceeding, the Crockett Cogeneration project applied to the BAAQMD for a variance for start-up emissions.

3. The Bay Area Air Quality Management District has certified pursuant to Public Resources Code section 25523(d) that complete emission offsets for the proposed project have been identified and will be obtained by San Francisco Energy Company.
4. The Bay Area Air Quality Management District is non-attainment for the state 24-hour PM_{10} standard. Pursuant to District Rule 2-2-303, PM_{10} offsets are not required for the project.
5. The project will use Best Available Control Technology.
6. The project is technologically "state-of-the-art" for combined cycle cogeneration. There are no other known measures to further reduce emissions from this facility. Among the BACT measures is the exclusive use of natural gas, which is itself considered a mitigating measure against the formation of PM_{10} .
7. The project is likely to contribute to a reduction in Bay Area pollutants by purchasing emission offsets and displacing PG&E powerplant emissions.
8. Within the context of the California Environmental Quality Act, the project is likely to produce a local but insignificant increase in PM_{10} levels for which mitigation is not required.
9. As shown in Commission Figure 6, the combustion PM_{10} emissions from the project, approximately 2.2 - 2.3 $\mu g/m^3$, are below the EPA's Level of Significance. The frequency of winds blowing PM_{10} from the project toward Bayview Hunters Point is low. Thus, the frequency and level of maximum concentration do not cause substantial exposure, even to sensitive receptors.
10. The environmental setting, both San Francisco and regional, must be considered in its entirety. The Air Basin complies with the state **annual** standards for PM_{10} which are health based. There is no trend toward violation of the annual standard. The project's PM_{10} emissions will be reasonably constant throughout the year. As such, the project's emissions do not contribute substantially to the ambient emissions monitored for annual PM_{10} compliance. Likewise, for non-winter days, ambient PM_{10} levels are about 25 to 33 percent of the last 3-year average for violations of the state 24-hour standard. Consequently, the project's emissions do not contribute substantially to that non-winter ambient level of PM_{10} .
11. The violation of the state 24-hour PM_{10} standard is not caused by a simple aggregation of greater amounts of the identified contributors to PM_{10} per the BAAQMD's pie chart. (AIR QUALITY FIGURE 1) The winter PM_{10} violations are dominated by wood smoke, vehicular emissions and weather conditions. The weather is quite variable and strongly influences the level of residential fireburning as well as driving. Further attempts to control the project emissions would not prevent the violations caused by wood smoke,

vehicle emissions, and weather. For winter days that begin non-violation, expected levels of project-specific emissions would not cause a violation, but would be overwhelmed by the combined effects of wood smoke, vehicular emissions, and weather. Moreover, the project will result in District-wide displacement of older, more polluting PG&E facilities, reducing PM₁₀ emission year-round, not just during the winter violations.

12. The project's PM₁₀ emissions are a contribution from an already controlled sector of all PM₁₀ contributors. The project employs BACT in all respects and is not technically capable of further emission reductions. The greatest contributors to violations include a substantial uncontrolled sector. The only means to attain the state 24-hour PM₁₀ standard is control of presently uncontrolled contributors. Emission reductions for wood smoke are largely the result of voluntary programs which alert the public to the effects of woodburning.
13. The reduction of ambient PM₁₀ in the District to a level which will comply with the 24-hour standard will require a program imposing long term, large-scale societal lifestyle changes to control woodburning and driving during winter months. Without a District-wide program, attainment of the 24-hour state standard is unlikely and would not be influenced by whether or not this project is built. Therefore, in terms of significance in the overall setting, the woodburning, driving and weather are significant; the proposed project is not. Whether and what further measures are required is a judgment for the air quality agencies.
14. There is no credible evidence in the record to support the proposition that if this project is denied certification by this Commission that no new generation facility will be constructed to provide local generation to comply with PG&E's SFOC. The credible evidence in the record suggests that the repowering of Hunters Point Units 2 and 3 is the likely option available to PG&E to comply with the SFOC prior to 2001. Such a facility would have emissions similar to the proposed project.
15. In addition to minimal project PM₁₀ emissions, BACT emission controls limit to the extent possible emissions which are precursors to secondary PM₁₀. Additionally, the project displaces PG&E facilities District-wide which are precursors to secondary PM₁₀. Lastly, under the BAAQMD's NSR rules, the NO_x emissions must be offset. By offsetting NO_x at a ratio of 1:1.15, the offsets create a net air quality benefit due to the construction of the project in the context of the federal and state regulatory programs. The BAAQMD offset ratio for NO_x will result in a PM₁₀ precursor being offset in excess of the project's emissions.
16. The project can be constructed, started-up, and operated in a manner which will not result in any significant air quality impacts and will not contribute to any significant cumulative air quality impact.

17. Dry cooling technology is unnecessary as PM_{10} mitigation and, due to the increased capital cost and net energy inefficiency, is unwarranted.
18. Mobile source mitigation for PM_{10} is available, but is of too short a duration and too great an economic cost to be warranted in this case.
19. The Conditions of Certification which follow ensure that the proposed project will be constructed start up, and operated in conformity with the laws, ordinances, regulations, and standards set forth in APPENDIX: LORS of this Decision.

CONDITIONS OF CERTIFICATION

AQ-1 As part of the requirements for Condition SOIL&WATER-1 for the preparation of a grading and erosion control plan for the project site, the project owner shall include and identify in that plan the following:

- the location of all paved roads, parking and laydown areas,
- the location of all roads, parking areas and laydown areas that are surfaced with gravel,
- the location of all roads, parking areas and laydown areas that are treated with magnesium chloride dust suppressant or equivalent, and
- the location of all dirt storage piles

Verification: No less than 30 calendar days prior to the start of grading on the project site, the project owner shall submit for review and approval to the Commission Compliance Project Manager (CPM) in writing, and with construction drawings, a City/County of San Francisco-approved erosion and sediment control plan. This plan shall include the delineation of the control measures discussed above for all roads, parking areas and laydown areas, and the location of all dirt storage piles.

AQ-2 The project owner shall perform the following mitigation measures during the construction phase of the project:

- a. The area of disturbance within the construction site shall be watered so that it is visibly wet, twice or more daily, as necessary. This condition shall not apply on rainy days where precipitation exceeds 0.1 inch.
- b. Any graded areas where construction ceases shall be treated with a magnesium chloride (or equivalent) dust suppressant within seven days, or sooner if windy conditions create visible dust beyond the project site boundary.
- c. Magnesium chloride (or equivalent) dust suppressant or fabric covers shall be applied to any dirt storage pile within three days after the pile is formed, or sooner if windy conditions create visible dust beyond the project site boundary.
- d. Prior to entering public roadways, all truck tires shall be visually inspected, and, if found to be dirty, cleaned of dirt using water spraying or methods of equivalent effectiveness, subject to CPM approval, prior to entering public roadways.

- e. At least 500 yards from the construction site entrances, public roadways shall be cleaned on a weekly basis, or when there are visible dirt tracks on the public roadways, by either mechanical sweeping or water flushing.
- f. A speed limit sign shall be posted at the entrance of the construction site to limit vehicle speed to no more than 15 miles per hour on unpaved areas.
- g. All construction equipment shall be properly maintained to detect and to prevent mechanical problems that may cause excess emissions.
- h. No construction equipment shall be kept idling when not in use for more than 30 minutes.

Verification: The project owner shall maintain a daily log of water truck activities, including the number of gallons of water used to reduce the dust at the construction site. A log or record of the frequency of public road cleaning shall also be maintained. These logs and records shall be available for inspection by the CPM during the construction period. The project owner shall identify in the monthly construction reports the area(s) that the project owner shall cover or treat with dust suppressants. The project owner shall make the construction site available to the District staff and the CPM for inspection and monitoring.

AQ-3 Prior to the start of construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation and soil remediation activities) , the project owner shall provide the CPM with the following information: the name, telephone number, resume, and indication of availability of the on-site Environmental Coordinator.

Protocol: The resume shall include experience in monitoring hazardous waste site remediation or experience as an inspector with an air pollution control district.

The CPM will review the qualifications of, and must approve in writing, the project owner's designated Environmental Coordinator prior to the start of construction.

Verification: At least 90 days prior to the start of construction, the project owner shall submit to the CPM for review and written approval the information required above. The CPM shall approve or disapprove the proposed Environmental Coordinator within 15 days of receipt of the submittal.

AQ-4 The on-site Environmental Coordinator shall be on-site every work day during site preparation.

Duties: The on-site Environmental Coordinator shall inspect and ensure that all fugitive dust mitigation measures during the site preparation phase of construction are properly implemented including, but not limited to, the mitigation measures specified in Condition AQ-2. The primary responsibility of the Environmental Coordinator is to insure that no fugitive dust emissions are emitted beyond the property boundary line under control by the project owner.

Verification: See verification for Condition AQ-5.

AQ-5 The on-site Environmental Coordinator will exercise the authority to halt any on-site activity, temporarily stop activities, or direct activities to proceed under a modification of the mitigation requirements of Condition AQ-2 if, in the opinion of the Environmental Coordinator, the project owner is not complying with the requirements of Condition AQ-2 or fugitive dust emissions are noticed beyond the project boundary.

Verification: The Environmental Coordinator will prepare on a daily report of the day's construction activities and appropriate fugitive dust mitigation measures employed by the project owner. A summary of the daily reports shall be included in the monthly compliance report to the CPM. If any complaints by the public are received, or if the project owner does not agree to comply with instructions given by the Environmental Coordinator, or if any other fugitive dust issue, in the judgment of the Environmental Coordinator, needs to be brought to the attention of the CPM, the Environmental Coordinator shall contact the CPM at his or her earliest convenience.

AQ-6 For all utility trenching activities, the project owner shall implement the following control measures:

- a. Soil shall be pre-wetted prior to excavation,
- b. Travel surfaces shall be wetted with the use of a water truck, and
- c. All exposed soil areas within the utility trenching area shall be wetted by the use of hose spraying.

Verification: The project owner shall make the utility trenching sites available to the Bay Area Air Quality Management District (District) staff and the CPM for inspection and monitoring.

AQ-7 The total dissolved solids content of the circulating cooling water shall not exceed 6600 ppmw, averaged over any consecutive three-hour period.

Verification: The project owner shall maintain records of a weekly blowdown water quality test for inspection by the CPM.

AQ-8 The cooling tower drift rate shall not exceed 0.0006%. The project owner shall provide a written vendor statement, prior to installation, declaring that the cooling tower drift eliminators used meet the drift rate stated above.

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

AQ-9 To maintain compliance over the life of the project with the 0.0006% drift rate limit, the project owner shall perform source tests of the PM₁₀ emission rates from the cooling tower. The project owner shall submit to the CPM a written source test procedure for approval. Subsequent to receiving approval from the CPM of the source test procedure, the project owner shall conduct source testing of the cooling tower.

Verification: The project owner shall conduct the cooling tower source tests in the years 2002 and 2012. Sixty (60) days prior to the planned cooling tower PM₁₀ source test, the project owner shall submit to the CPM for approval a detailed source test procedure. The CPM will notify the project owner of the approval, disapproval, or proposed modifications to the test procedure within 30 days of receipt of the test procedure. The project owner shall incorporate the CPM's comments on or modifications to the test procedure.

Source test results shall be submitted to the CPM within 60 days following the date of the tests.

AQ-10 The two 150-horsepower diesel fuel standby pump engines (Engine-Driven Booster Fire Pump and Standby Fire Pump) shall not each operate greater than one hour per day to check for normal operation of these engines. In addition, these two units shall not operate more than 100 hours per year.

Verification: As part of the January Air Quality Report described in the Verification to Condition AQ-21, the project owner shall include a log of the hours of daily operation and total annual hours of operation of the standby pump engines.

AQ-11 The two 150-horsepower standby pump engines described in Condition AQ-10 shall use only low sulfur diesel fuels which contain 0.05 percent or less sulfur by weight.

Verification: As part of the January Air Quality Report described in the Verification to Condition AQ-21, the project owner shall include the records of fuel oil purchased and the sulfur content included.

AQ-12 The two 150-horsepower standby pump engines described in Condition AQ-10 shall not exceed the following emission limits:

Emission Limits in pounds per hour		
CO	NO _x as NO ₂	PM ₁₀
2.0	9.3	0.7

The project owner shall submit to the CPM a written source test procedure for approval. Subsequent to receiving written approval from the CPM of the source test procedure, the project owner shall conduct source testing of the two standby pump engines.

Verification: Sixty (60) days before initial operation of the standby pump engines, the project owner shall submit to the CPM a detailed performance test procedure necessary to comply with this Condition. The CPM will notify the project owner of the approval, disapproval, or proposed modifications to the test procedure within 30 days of receipt of the test procedure. The project owner shall incorporate the CPM's comments on or modifications to the procedure.

Source test results shall be submitted to the CPM within 60 days of the date of the tests.

AQ-13 through AQ-20 (None)

District Conditions of Certification

AQ-21 The S-1 Combustion Turbine Generator (CTG), S-2 Heat Recovery Steam Generator (HRSG), and S-3 Auxiliary Boiler shall be fired exclusively with natural gas. (BAAQMD-1)

Verification: After the project starts commercial operation, the project owner shall submit to the CPM an Air Quality Report semiannually every January and July. The complete data report shall be submitted in electronic form, and shall contain all of the data required by these air quality Conditions of Certification.

Protocol: 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. For purposes of verifying condition AQ-21, the data report shall contain information on fuel consumption as required in condition AQ-22.

- AQ-22** The heat input rates of each source or combination of sources described in Table 1 below shall not exceed the limits given therein. The hourly limits shall apply to a rolling three hour average. The daily limits shall apply to a calendar day. The annual limits shall apply to any consecutive twelve month period. As specified in Table 1 below, the combined natural gas usage at S-1 CTG and S-2 HRSG shall not exceed 15,613,300 MM BTU during any consecutive twelve month period. (BAAQMD-2)

AIR QUALITY: TABLE 1
Maximum Heat Input Limits (HHV)

Source	MM BTU/hour	MM BTU/day	MM BTU/year
S-1 CTG	1,791	42,984	15,402,600
S-2 HRSG	100	2,400	430,000
S-1 CTG & S-2 HRSG Combined	1,840	44,160	15,613,300
S-3 Auxiliary Boiler	25	600	50,000

Verification: As part of the semiannual Air Quality Report, the project owner shall document the date and time when the hourly fuel consumption exceeds the hourly limits included in Table 1.

Protocol: The reports shall include a summary of hourly and daily fuel consumption in MMBtu [high heating value (HHV)] for all the cases indicated in Table 1. The January Air Quality Report shall also include information on the amount of fuel consumed, in MMBtu (HHV), in the prior calendar year.

- AQ-23** The S-2 HRSG duct burners shall not be operated unless the S-1 CTG is in operation. (BAAQMD-3)

Verification: This permit condition will be verified with the implementation of condition AQ-22.

AQ-24 The duration of any S-1 CTG start-up period shall not exceed one hour. The CTG shall not be started up more than once per calendar day. The CTG start-up period shall commence when fuel use at the turbine begins. The start-up period shall be considered over only at the start of a NO_x and CO continuous emission monitor (CEM) sampling period where the controlled NO_x, CO, and POC emissions from the turbine each do not exceed their respective baseload emission limits of 3.25 ppmvd NO_x @ 15 percent O₂, 3.0 ppmvd CO @ 15 percent O₂, and 2.6 lb POC per hour. (BAAQMD-4)

Verification: As part of the semiannual Air Quality Report, the project owner shall include the date and time when the CTG "start up" conditions exceed one hour or when it was started more than once per calendar day. The Air Quality Report shall also include a daily record showing whether the CTG was started up and the duration of the "start up" condition.

AQ-25 The duration of any S-1 Combustion Turbine Generator shutdown period shall not exceed 0.5 hours. The CTG shall not be shutdown more than once per calendar day. The CTG shutdown period will have commenced at the start of a NO_x or CO CEM sampling period where any of the controlled NO_x, CO, and POC emissions exceed their respective baseload emission limits of 3.25 ppmvd NO_x @ 15 percent O₂, 3.0 ppmvd CO @ 15 percent O₂, and 2.6 lb POC per hour. The shutdown period shall be considered over when fuel consumption at the turbine ceases. (BAAQMD-5)

Verification: As part of the semiannual Air Quality Report, the project owner shall include the date and time when the CTG "shutdown" conditions exceeded one hour and when the CTG was "shutdown" more than once per calendar day, and provide information on the duration of each "shutdown."

AQ-26 Total S-1 CTG start-up time shall not exceed 100 hours during any consecutive twelve month period. (BAAQMD-6)

Verification: As part of the semiannual Air Quality Report, the project owner shall include the total number of start-up hours for each prior rolling twelve month average.

AQ-27 Total S-1 CTG shutdown time shall not exceed 50 hours during any consecutive twelve month period. (BAAQMD-7)

Verification: As part of the semiannual Air Quality Report, the project owner shall include the total number of shutdown hours for each prior rolling twelve month average.

AQ-28 The S-1 CTG and S-2 HRSG shall be vented to the properly operated and maintained A-1 SCR System and A-2 Oxidizing Catalyst at all times. (BAAQMD-8)

Verification: As part of the semiannual Air Quality Report, the project owner shall provide information on any major problem in the operation of the SCR System and Oxidizing Catalyst for the CTG and HRSG. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-29 The sulfur content of natural gas burned at this facility (S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler) shall not exceed 0.3 grains per 100 standard cubic feet of natural gas. The natural gas sulfur content shall be guaranteed in writing by the natural gas supplier or verified by laboratory analysis. The written guarantee or laboratory analysis results shall be submitted to the District within 60 days of start-up of the facility. (BAAQMD-9)

Verification: Within 60 days of start-up of the facility, the project owner shall submit the information required by this condition to the District.

AQ-30 The stack height of emission point P-1 shall be at least 110 feet above grade. Emission point P-1 is defined as the exit of the common exhaust stack for S-1 CTG and S-2 HRSG, located downstream of the A-1 SCR System and A-2 Oxidation Catalyst. (BAAQMD-10)

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

AQ-31 Carbon Monoxide (CO) emissions from S-1 CTG and S-2 HRSG at emission point P-1 shall not exceed 3.0 ppmvd CO @ 15% O₂, averaged over any consecutive three hour period, except during the first 60 minutes of a start-up period and the second 15 minutes of a shutdown period as defined in conditions AQ-24 and AQ-25, respectively. (BAAQMD-11)

Verification: As part of the semiannual Air Quality Report, the project owner shall indicate the date, time, and duration of any violation of this condition. The project owner shall also include in the reports the rolling three hour CO concentration at 60 minute intervals.

AQ-32 Nitrogen oxide (NO_x) emissions from the S-1 CTG and S-2 HRSG at emission point P-1 shall not exceed 3.25 ppmvd @ 15% O₂, averaged over any rolling three hour period, except during start-up and shutdown periods as defined in conditions AQ-24 and AQ-25, respectively. (BAAQMD-12)

Verification: As part of the semiannual Air Quality Report, the project owner shall indicate the date, time, and duration of any violation of this condition. The project owner shall also include in the reports the rolling three hour NO_x concentration at 60 minute intervals.

AQ-33 Nitrogen oxide (NO_x) emissions from S-3 Auxiliary Boiler shall not exceed 25 ppmvd @ 3 percent O₂, averaged over any consecutive three hour period. (BAAQMD-13)

Verification: As part of the semiannual Air Quality Report, the project owner shall indicate the date, time, and duration of any violation of this condition. The project owner shall also include in the reports the rolling three hour NO_x concentration at 60 minute intervals.

AQ-34 Ammonia (NH₃) emissions from emission point P-1 shall not exceed 10 ppmvd @ 15 percent O₂, averaged over any consecutive three hour period. This ammonia emission concentration limit shall be verified by the continuous records of ammonia injection rate to A-1 SCR System. The correlation between CTG and HRSG heat input rates, A-1 SCR ammonia injection rate and corresponding ammonia emission concentration at emission point P-1 and the maximum ammonia injection rate shall be determined in accordance with condition AQ-42. (BAAQMD-14)

Verification: Refer to Condition AQ-42.

AQ-35 Controlled criteria pollutant emission rates from permitted sources, averaged over any rolling three hour period, shall not exceed the hourly limits specified below in Table 2, except during start-up or shutdown periods. (BAAQMD-15)

AIR TABLE 2
Controlled Criteria Pollutant Emission Rates (lb/hr)
(Excluding Start-up and Shutdown Emissions)

Source	NO _x	CO	POC	PM ₁₀	SO ₂
S-1 CTG	21.0	10.6	2.6	8.76	1.54
S-1 CTG and S-2 HRSG Combined	21.56	12.1	4.5	9.86	1.6
S-3 Auxiliary Boiler	0.75	0.925	0.07	0.34	0.02
Facility Maximum ^a	22.3	13.0	4.6	10.2	1.62

^a Includes emissions from S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler only

Verification: This permit condition will be verified with the implementation of condition AQ-42. In addition, the project owner shall develop a computerized system to report hourly, daily, and annual emissions for NO_x, PM₁₀, SO₂, POC and CO for all the sources and combination of sources included in Table 2. In the semiannual Air Quality Report, the project owner shall indicate the date, time, and duration of any violation to the NO_x, POC and CO limits presented in this condition. The project owner shall include in the semiannual Air Quality Report hourly emissions as required in this condition.

AQ-36 Nitrogen Oxide, Carbon Monoxide, and Precursor Organic Compound emissions from the Combustion Turbine Generator during a start-up or shutdown shall not exceed the limits specified in Table 3 below. If any of the limits in Table 3 are exceeded, then the owner/operator shall demonstrate to the satisfaction of the Air Pollution Control Officer (APCO) that the higher start-up and/or shutdown emission limits will not jeopardize compliance with the maximum daily and maximum annual emission limits specified in Tables 4 and 5, respectively. The District and the CPM may then (at the discretion of the APCO and CPM) adjust the start up and/or shutdown emission limits specified in Table 3. (BAAQMD-16)

AIR QUALITY: TABLE 3
Combustion Turbine Generator Start-up and Shutdown
Emission Limits

Pollutant	Start-up Limits ^a (lbs)	Shutdown Limits ^b (lbs)
Nitrogen Oxides (NO _x)	76.5	52.7
Carbon Monoxide (CO)	437.3	238.7
Precursor Organic Compounds (POC)	298.9	253

^a Based upon a maximum start-up period of 1 hour

^b Based upon a maximum shutdown period of 0.5 hour

Verification: This permit condition will be verified with the implementation of condition AQ-43. In addition, the project owner shall use a computerized system developed to comply with condition AQ-35 to estimate NO_x and CO mass flow rates during start-up and shutdown conditions. In the semiannual Air Quality Report, the project owner shall indicate the date, time, and duration of any violation to the NO_x, POC and CO limits presented in this condition. The project owner shall include in the semiannual Air Quality Report hourly emissions as required in this condition.

AQ-37 Criteria-pollutant emissions from the project (S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler) shall not exceed the limits specified below in Table 4 during any calendar day. (BAAQMD-17)

AIR QUALITY: TABLE 4
Daily Criteria Pollutant Emission Limits (lbs/day)

Pollutant	Emission Limit (lbs/day)
Nitrogen Oxides (NO _x)	615.1
Carbon Monoxide (CO)	949.3
Precursor Organic Compounds (POC)	653.4
Particulate Matter (PM ₁₀)	235.2
Sulfur Dioxide (SO ₂)	38.0

Verification: As part of the semiannual Air Quality Report, the project owner shall provide data on daily emissions as required by this condition.

AQ-38 Criteria pollutant emissions from the project (S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler) shall not exceed the limits specified below in Table 5 during any consecutive twelve month period. In accordance with the provisions of Regulation 2, Rule 4, if the annual precursor organic compound emissions exceed 50 tons over any consecutive twelve month period, the facility owner shall reimburse the District with emission reduction credits for all POC offsets provided from the District Small Facility Banking Account. (BAAQMD-18)

AIR QUALITY: TABLE 5
Annual Criteria Pollutant Emission Limits (tons/yr)

Pollutant	Emission Limit (tons/year)
Nitrogen Oxides (NO _x)	97.16
Carbon Monoxide (CO)	85.2
Precursor Organic Compounds (POC)	46.5
Particulate Matter (PM ₁₀)	40.37
Sulfur Dioxide (SO ₂)	6.74

Verification: As part of the January Air Quality Report, the project owner shall provide data on yearly emissions as required by this condition.

AQ-39 Prior to the initial operation of S-1 CTG and S-2 HRSG, the project owner shall install, calibrate, and operate a District-approved CEM and recording system for nitrogen oxides, carbon monoxide, and either oxygen or carbon dioxide for emission point P-1. The number and location of these monitors shall be subject to District approval. The CEM and recording system shall comply with the applicable provisions of 40 CFR part 72 (Title IV of the Clean Air Act). (BAAQMD-19)

Verification: One hundred and twenty (120) days before initial operation, the project owner shall submit to the District and the CPM a continuous emissions monitoring procedure. Within sixty (60) days of receipt of the procedure, the District and the CPM will advise the project owner of the acceptability of the procedure.

AQ-40 Prior to the initial operation of S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler, the project owner shall install, calibrate, and operate District-approved CEM and recording system for fuel consumption at S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler and ammonia injection rate at A-1 SCR System. The number and location of these monitors shall be subject to District approval. (BAAQMD-20)

Verification: One hundred and twenty (120) days before initial operation, the project owner shall submit to the District and the CPM a CEM procedure for the CEM and recording for fuel consumption. Within sixty (60) days of receipt of the procedure, the District and the CPM will advise the project owner of the acceptability of the procedure.

AQ-41 The project owner shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District regulations and permit conditions. The location of these sampling ports and platforms shall be subject to District approval in consultation with the CPM. (BAAQMD-21)

Verification: One hundred and twenty (120) days before initial operation, the project owner shall submit to the District and the CPM a procedure for the installation of stack sampling ports and platforms. Within sixty (60) days of receipt of the procedure, the District will advise the project owner and the CPM of the acceptability of the procedure.

AQ-42 Within 60 days of start-up, and annually thereafter, the project owner of S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler shall conduct a District-approved source test of these sources at maximum operating rates to determine compliance with conditions AQ-31 through 35 and to verify the accuracy of the CEM required in condition AQ-39. The test shall also quantify the correlation between CO and POC emissions during baseload operation of S-1 CTG and S-2 HRSG. This correlation shall be utilized to determine compliance with the POC emission limits of conditions AQ-35, 37, and 38. The source test shall also determine the correlation between A-1 SCR

system ammonia injection rate and the corresponding ammonia emission concentration at emission point P-1. Source test results shall be submitted to the District within 30 days of the date of the tests. In accordance with District Regulation 2-1-411, the project start-up period may be extended upon receipt of a written request from the owner. (BAAQMD-22)

Verification: Sixty (60) days before initial operation of the cogeneration project, the project owner shall submit to the District and the CPM a detailed performance test procedure necessary to comply with this condition and with condition AQ-46. The District will notify the project owner and the CPM of the approval, disapproval, or proposed modifications to the procedure within 30 days of receipt of the procedure. The project owner shall incorporate the District and Staff's comments on or modifications to the procedure. Sixty (60) days before any subsequent annual compliance source tests, the project owner shall submit to the District and the CPM any proposed changes to the original source test procedure. The District will notify the project owner and the CPM of the approval, disapproval, or proposed modifications to the modified source test procedure within 30 days of receipt of the project owner's proposed modifications of the annual source test plan. The project owner shall incorporate the District's and Staff's comments on or modifications to the annual source test procedure.

The project owner shall also notify the District and the CPM within seven (7) working days before the project begins initial operation and/or plans to conduct source testing as required by this condition.

Source test results shall be submitted to the District within 30 days of the date of the tests.

AQ-43 Within 60 days of start-up, the project owner of S-1 CTG shall conduct a District-approved source test utilizing external CEM to determine compliance with condition AQ-36. The test shall determine total CO, POC, and NO_x emissions during a start-up and a shutdown. The test shall also quantify the correlation between CO and POC emissions during a start-up and a shutdown. This correlation shall be utilized to determine compliance with the POC emission limits of conditions AQ-24, 25, 36, 37, and 38. Source test results shall be submitted to the District within 30 days of the date of the tests. (BAAQMD-23)

Verification: Sixty (60) days before start up of the project, the project owner shall submit to the District and the CPM a detailed performance source test procedure designed to satisfy the requirements of this condition. The District and the CPM will notify the project owner of the approval, disapproval, or proposed modifications to the procedure within 30 days of receipt of the procedure. The project owner shall incorporate the District's and Staff's comments on or modifications to the procedure. The project owner shall also notify the District and the CPM within seven (7) working days before the cogeneration project begins initial operation and/or plans to conduct source test as required by this condition.

Source test results shall be submitted to the District within 30 days of the date of the tests.

AQ-44 The project owner shall calculate projected annual NO_x and POC emissions based upon the source test results required in conditions AQ-42 and 43. If the projected annual NO_x emissions exceed 100 tons per year or the projected annual POC emissions exceed 50 tons per year, then the project owner shall modify the operating parameters of the facility as necessary to insure continued compliance with condition 38. The operating parameters subject to modification include, but are not limited to, total hours of start-up and shutdown and heat input limits. The APCO may modify permit conditions relating to these operating parameters as deemed necessary to insure continued compliance with AQ-38. (BAAQMD-24)

Verification: As part of the January Air Quality Report, the project owner shall provide data on yearly emissions as required by this condition.

AQ-45 Within 60 days of start-up, the project owner of S-1 CTG and S-2 HRSG shall conduct a District-approved source test (conducted at maximum operating rates) to determine the emission rates (in pounds per MM BTU) of the carcinogenic compounds listed below in Table 6 from the project. The owner/operator shall use these emission rates and maximum permitted fuel usage rates and hours of operation to calculate maximum projected annual emissions (lb/yr) for each carcinogenic compound. The owner shall compare these projected maximum annual emissions to the emission limits listed in Table 6 below.

AIR QUALITY: TABLE 6
Annual Emission Limits for Carcinogenic Compounds

Compound	Emission Limit (lb/yr)
Formaldehyde	4,652
Benzene	600
Polycyclic Aromatic Hydrocarbons	84.4

If any one of the projected emission rates for each compound exceeds their respective limits listed in Table 6, then the owner shall perform a revised health risk assessment to determine the total increased carcinogenic risk to the maximally exposed individual resulting from the emission of the compounds. The risk assessment shall be subject to District review and approval and shall include non-inhalation pathways of exposure. The risk assessment shall be submitted to the District within 60 days of the source test

date. If the total increased carcinogenic risk exceeds 0.29 in one million, then the owner shall execute the following:

- a. Submit an application for a change of permit conditions to the District, and petition the Commission, requesting revised emission limits for the compounds listed in Table 6.
- b. Perform a carcinogenic risk assessment (including non-inhalation pathways of exposure) at the projected maximum annual emission rates of each compound to determine the increased carcinogenic risk pursuant to the District's Risk Management Policy. In accordance with this policy, the owner/operator shall install the Toxic Best Available Control Technology (TBACT) as determined by the District, on S-1 CTG and S-2 HRSG if the calculated carcinogenic risk exceeds one in a million. (BAAQMD-25)

Verification: Please refer to the verification to condition AQ-42.

AQ-46 Within 180 days of the issuance of the Authority to Construct, the project owner shall contact the District's Technical Services Division regarding requirements for the CEM recorders, sampling ports, platforms, and source tests required by conditions AQ-39 through 43 and 45. All source testing and emission monitoring shall be conducted in accordance with the applicable provisions of the District's Manual of Procedures. (BAAQMD-26)

Verification: Compliance with conditions AQ-43, AQ-44 and AQ-46 shall be deemed as verification of this condition.

AQ-47 The project owner of S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler shall maintain appropriate records including, but not limited to, fuel usage rates, hours of operation, A-1 SCR System ammonia injection rate, and start-up and shutdown duration to verify compliance with permit conditions. Prior to initial operations of S-1 CTG, S-2 HRSG, and S-3 Auxiliary Boiler, the owner/operator shall obtain District approval of the record-keeping formats and systems. These records shall be retained on-site for a minimum of two years from the date of entry and made available to District representatives upon request. (BAAQMD-27)

Verification: During site inspection, the project owner/operator shall make the plant logs available to the District, CARB, and the Staff. In the event of plant breakdown, the project owner shall notify the BAAQMD.

Sixty (60) days before start up of the project, the project owner shall submit to the District and the CPM a detailed description of the record keeping systems that will be implemented to comply with this condition. The District and the CPM will notify the project owner of the

approval, disapproval, or proposed changes to the record keeping system plan within 30 days of receipt of the plan. The project owner shall incorporate the District's and Staff's comments on or modifications to the system plan.

AQ-48 Prior to the issuance of the Authority to Construct for the project, emission offsets shall be submitted to the District in the amount of 111.73 tons per year of Nitrogen Oxides (NO_x) and/or Precursor Organic Compounds (POC). These emission offsets shall be in the form of valid District Emission Reduction Credit Certificates. (BAAQMD-28)

Verification: Within five (5) working days after the District issues the Authority to Construct, the project owner shall submit to the CPM copies of the emission offsets contracts and the Authority to Construct.

AQ-49 Notwithstanding any reporting requirements specified in District Regulations which apply to the operation of the project, the owner/operator shall notify the District Permit Services Division in writing of any violation of these permit conditions within 96 hours of the occurrence of the violation. (BAAQMD-29)

Verification: During site inspection, the project owner shall make the plant logs available to the District, CARB, and the Staff.

AQ-50 Prior to the issuance of the Permit to Operate for this facility and if deemed necessary to insure compliance with the benzene emission limit of AQ-45, the APCO may impose permit conditions requiring the maintenance of a minimum inlet temperature for the A-2 Oxidizing Catalyst bed and the installation of monitoring and recording equipment necessary to verify compliance with that temperature. (BAAQMD-30 of 30)

Verification: Refer to Condition AQ-42.

AQ-51 The duration of any Gas Turbine "start-up" may exceed one hour during the initial commissioning start-up phase, not to exceed a total of 45 operating days, beginning with first firing of fuel in the Gas Turbine. For the purpose of these permit conditions, "operating day" is defined as any calendar day during which fuel is fired in the Gas Turbine.

Verification: As part of the first semiannual Air Quality Report, the project owner shall include the date and time when the CTG "start-up" duration, as defined in Condition AQ-24, exceeded one hour.

AQ-52 The duration of any Gas Turbine "shutdown" may exceed one-half hour during the initial commissioning start-up phase, not to exceed a total of 45 operation days, beginning with first firing of fuel in the Gas Turbine.

Verification: As part of the first semiannual Air Quality Report, the project owner shall include the date and time when the CTG "shutdown" duration, as defined in Condition AQ-25, exceeded one-half hour.

AQ-53 Gas Turbine start-up time occurring during the initial commissioning start-up phase, not to exceed a total of 45 operating days beginning with first firing of fuel in the Gas Turbine, shall not be used in calculating the 12 month cumulative Gas Turbine start-up time limit of 100 hours, as permitted by Condition AQ-26 of this Commission Decision.

Verification: As part of the verification requirements of Condition AQ-26, the project owner shall include the calendar date when the total number of start-up hours for the first twelve month period commenced.

AQ-54 Gas Turbine shutdown time occurring during the initial commissioning start-up phase, not to exceed a total of 45 operating days beginning with first firing of fuel in the Gas Turbine, shall not be used in calculating the 12-month cumulative Gas Turbine shutdown time limit of 50 hours, as permitted by Condition AQ-27 of this Commission Decision.

Verification: As part of the verification requirements of Condition AQ-27, the project owner shall include the calendar date when the total number of start-up hours for the first twelve month period commenced.

AQ-55 There shall be no limitation on the number of daily Gas Turbine start-up/shutdown sequences during the commissioning start-up phase, not to exceed a total of 45 operating days, beginning with first firing of fuel in the Gas Turbine.

Verification: As part of the first semi annual Air Quality Report, the project owner shall include the date and number of start-up/shutdown sequences during the first 45 operating days of the Gas Turbine.

AQ-56 Condition AQ-28 of the Decision, requiring the Gas Turbine and HRSG to vent to a properly operated and properly maintained oxidation catalyst and SCR system, shall not be applicable during the commissioning start-up phase. Firing the Gas Turbine

without venting the flue gases to the catalyst systems shall not exceed 180 firing hours.

Verification: As part of the first semiannual Air Quality Report, the project owner shall provide information, including length of firing without catalyst control, and the circumstances during the commissioning start-up phase when the SCR and oxidation catalyst systems were not in use.

AQ-57 Conditions AQ-31 and AQ-32 of this Decision limiting the concentrations of CO and NO_x, respectively, from the Gas Turbine and HRSG, shall not be applicable during the commissioning start-up phase, not to exceed 45 operating days, beginning with first firing of fuel in the Gas Turbine.

Verification: As part of the first semiannual Air Quality Report, the project owner shall include the date, time, and duration of any exceedence of the concentration limits specified in Conditions AQ-31 and AQ-32 during the 45-day commissioning start-up phase.

AQ-58 Condition AQ-33 of this Decision limiting the NO_x concentration from the Auxiliary Boiler shall not be applicable during the commissioning start-up phase, not to exceed 60 Auxiliary Boiler firing hours.

Verification: As part of the first semiannual Air Quality Report, the project owner shall include the date, time, and duration of any exceedence of the NO_x concentration limits specified in Condition AQ-33 during the 45-day commissioning start-up phase.

AQ-59 The portions of Condition AQ-35 of this Decision limiting hourly emissions of NO_x, CO, and POC from the Gas Turbine and HRSG, as well as the limitations of facility maximum emissions, shall not be applicable during the commissioning start-up phase, not to exceed 45 operating days, beginning with the first firing of fuel in the Gas Turbine. The portions of Condition AQ-36 of this Decision limiting CO and POC emissions during a one hour Gas Turbine start-up shall be applicable during the commissioning start-up phase as facility hourly emissions limitations. Facility hourly NO_x emissions shall be limited to 160 lbs/hour during the commissioning start-up phase.

Verification: In the first semiannual Air Quality Report, the project owner shall include the date, time, and duration of any exceedence of the NO_x, CO, and POC hourly emission limits of Condition AQ-35.

AQ-60 The portions of Condition AQ-35 of this Decision limiting hourly emissions of NO_x, CO, and POC from the Auxiliary Boiler shall not be applicable during the commissioning start-up phase, not to exceed 60 Auxiliary Boiler firing hours.

Verification: In the first semiannual Air Quality Report, the project owner shall include the date, time, and duration of any exceedence of the NO_x, CO, and POC hourly emission limits of Condition AQ-35.

AQ-61 The portions of Condition AQ-37 of this Decision limiting daily emissions of NO_x from the Gas Turbine, HRSG, and Auxiliary Boiler shall not be applicable during the commissioning start-up phase, not to exceed a total of 30 operating days, beginning with first firing in the Gas Turbine. During the 30 operating days when the NO_x daily emission limit in Condition AQ-37 is not applicable, total emissions of NO_x shall not exceed 1500 pounds per calendar day.

Verification: As part of the first semiannual Air Quality Report, the project owner shall provide data on the daily NO_x emissions during the 30 operating days within the commissioning start-up phase described in this condition.

AQ-62 Notwithstanding the provisions of Condition AQ-62, daily NO_x emissions shall not exceed the limitation in Condition AQ-27 on any day that the District predicts an excess of the federal ambient air quality standard for ozone.

Verification: As part of the first semiannual Air Quality Report, the project owner shall provide documentation from the District identifying those days that the District predicts a violation of the federal one-hour ambient air quality standard for ozone.

PUBLIC HEALTH

Potential impacts on public and worker health resulting from accidental or non-routine releases of hazardous materials are addressed in the HAZARDOUS MATERIALS MANAGEMENT and INDUSTRIAL SAFETY AND FIRE PROTECTION sections, respectively. A discussion of health effects from electromagnetic fields may be found in the TRANSMISSION LINE SAFETY AND NUISANCE section. Pollutants released from the project via wastewater streams to surface water bodies or the public sewer system are discussed in the SOILS AND WATER RESOURCES section. Plant releases in the form of hazardous and nonhazardous wastes are described in the WASTE MANAGEMENT section.

1. Health Based Air Quality Standards.

The federal Clean Air Act requires that federal primary ambient air quality standards be set at levels requisite to protect the public's health, including an adequate margin of safety (42 U.S.C., § 7409(b)(1).) The California Air Resources Board (CARB) is required by California law to adopt state standards in consideration of the public health and safety including "health, illness, and irritation to the senses" (Health & Saf. Code, § 39606.) Under the federal act, state standards must be at least as strict as federal standards and may be more stringent. California has set more stringent standards for most pollutants and has set standards for hydrogen sulfide and sulfates, which do not have national standards.

The state standards, set by the CARB, are intended to protect those members of the population considered to be at highest risk to adverse health effects from exposure to air pollutants. Generally, such groups include the young, elderly, or those with existing illness. For a particular pollutant, the standard is set based on that health impact which is the most sensitive indicator of an adverse effect to the *most sensitive population* subgroup. An adverse effect is considered one which causes noticeable discomfort, causes an individual to reduce or curtail normal activities, or causes a health response requiring medication or medical attention, whether or not the effect is reversible. Each standard set by the State includes a margin of

safety. Thus, as long as levels of a pollutant do not exceed the standard, no adverse health effects from that pollutant would be expected, even in sensitive members of the population. Recommendations for the standards come from scientists and physicians with CARB's, Office of Environmental Health Hazard Assessment, and an independent advisory panel based on their review of the most recent research on the health effects of air pollution. State law requires standards to be reviewed whenever substantial pertinent new information becomes available and, in any event, at least once every five years (Cal. Code Regs., tit. 17, § 70101.)

Each standard consists of two parts. One part establishes the concentration of a pollutant allowed in ambient air, while the second specifies the duration, or time period, over which the concentration is to be measured. Criteria pollutants which have both federal and California standards include ozone (O_3), carbon monoxide (CO), particulate matter less than 10 micrometers in diameter (PM_{10}), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and airborne lead. State micron standards have been established for sulfates and hydrogen sulfide (H_2S). (FSA, Vol. I. p. 193 - 194).

Particulate matter consists of small particles of various substances less than 10 microns in size. It includes elements such as carbon, lead, and nickel; compounds such as nitrates, organics, and sulfates; and complex mixtures such as diesel exhaust and soil. These substances can occur in the form of solid particles or aerosols. Some particles are emitted directly into the atmosphere, while others result from gases which are transformed into particles through physical and chemical processes. The size, chemical composition, and concentration of the ambient PM_{10} can vary considerably from area to area and from season to season within the same area. (FSA, Vol. I, p. 195.)

PM_{10} can be grouped into two general sizes of particles: fine and coarse. The fine particles include compounds of nitrates, organics, sulfates, ammonium, and lead as well as elemental carbon such as soot. The fine fraction may also include many compounds that have been identified as toxic, such as benzo(a)pyrene, which is both a carcinogen and mutagen. Coarse particles consist mainly of soil minerals such as oxides of silicon, aluminum, calcium,

and iron; as well as particles from tires, sea salt, pollen, and spores. Because PM₁₀ can include many different types of particles with widely divergent chemical characteristics, potential health effects depend upon the constituent make-up of PM₁₀ to which persons may be exposed.

The size of the particles inhaled determines where they are deposited in the respiratory system. Coarse particles are deposited most often in the nose and throat. Fine particles are deposited most often in the bronchial tubes and in the lung's air sacs, with the greatest percentage being deposited in the air sacs. Particles deposited in the air sacs are removed more slowly by the body than particles in either the nose and throat or the bronchial tubes. Because of the longer residence time, they have a greater opportunity to cause adverse health effects. (FSA, Vol. I, p. 196.)

Epidemiological data demonstrate that exposure to particulate matter is associated with increased incidence of respiratory illness, chronic bronchitis, bronchoconstriction, and decreased pulmonary function. Recent studies have also shown an association between mortality rates and particulate air pollution (Ex. 23; Dockery et al. and Pope et al.). However, such studies have not provided detailed information regarding chemical speciation of the particles in the study area. Among the adverse effects associated with short-term exposure to particulate matter are increases in the rate of asthma attacks and, to a more limited extent, a correlation between hospital and emergency room admissions and particulate levels. Studies of chronic (long-term) effects have shown that both children and adults suffer increased frequency of respiratory illness and reduced pulmonary function with exposure to increasing levels of particulate matter. (FSA, Vol. I, p. 196.)

The state 24-hour and annual standards for particulate matter are based on studies which describe the lowest probable effects levels and which represent the lowest pollution levels at which health effects were investigated. The studies included investigations of increased rates of asthma attack, increased mortality, and changes in the health status of bronchitis patients.

The state 24-hour standard is intended to prevent exacerbation of symptoms in sensitive patients with respiratory disease, declines in pulmonary function (especially in children), and excess mortality from short-term exposure. (Cal. Code Regs., tit. 17, § 70200.) This standard is intended to provide a small margin of safety to account for the possibility of effects occurring at lower levels, and is substantially more stringent than the federal 24-hour standard.

The annual standard is based on studies which show that long-term exposure to PM₁₀ causes decreased breathing capability and increased respiratory illness in susceptible populations such as children. The annual standard is also based on the lifetime risk of cancer from exposure to carcinogenic particles known to be present in this size fraction. (FSA, Vol. I, pp. 194-196.)

2. Summary of the Evidence.

The BAAQMD performed a public health impacts analysis as part of its Determination of Compliance. Since the New Source Review (NSR) applies to health-based air quality standards for criteria pollutants, the BAAQMD determination that the project complies with all applicable laws and standards *necessarily* means that there are no significant health impacts from the project's criteria emissions. As to non-criteria pollutants, the BAAQMD conducted a health risk assessment of carcinogenic or toxic compound emissions. The BAAQMD determined that there was no significant public health impacts from such emissions. (FDOC, pp. 2, 6 & 11; see, AIR QUALITY discussion for details.)

In addition to providing information to BAAQMD and to the Commission, SFEC conducted its own health impacts analysis and reached the same conclusion as the District. Staff concurred with the analyses of both BAAQMD and SFEC except for the potential significant health impact of PM₁₀. Staff's position is that any exceedence of the state 24-hour PM₁₀ standard automatically creates a significant health impact. (FSA, Vol. I, p. 220.) On this basis, the Staff proposed a mitigation requirement for PM₁₀ offsets. (FSA, Vol. I, pp. 193 - 213.)

Intervenors' witnesses testified that the Bayview Hunters Point area already is overburdened with hazardous and toxic sites and pollution, and therefore should not be exposed to the 49 tons-per-year (tpy) of project PM₁₀ emissions. Intervenors stated that for such reason the community suffers a disproportionate level of health impacts, and so should be considered a particularly sensitive area. Intervenors also argue that any additional PM₁₀ emissions are significant. Intervenors' statistician witness (Dr. Fairley) testified that PM₁₀ emissions from this project, while only a fraction of a percent (0.0045% to 0.0158%) of total area emissions, can nonetheless be statistically associated with 2 - 6 additional deaths per year in the affected population. (9/12/95 RT 144; Fairley, p. 6.)¹⁰⁴

While Intervenors' principal witness testified that a "no-effects" threshold has not been established, he stated that the state 24-hour 50 ug/m³ (PM) standard is not unreasonable. (9/12/95 RT 155.) Intervenors' witness also conceded that the 50 ug/m³ is "close to impossible to reach," and if the standard were lower, "there would be no way that we could reach it." (RT 155.) "Even a 'pristine' area occasionally will reach 50 ug/m³." (RT 155.)

With regard to the causes of the winter violations of the state 24-hour PM₁₀ annual standard, Intervenors' witness attributes them to the combined effects of wood smoke (fire places), vehicles and ammonium nitrate. (RT 157 - 158.) To address these violations, the witness suggests that since not every winter day is high in PM₁₀, the public could be advised of mandatory "no burn" days based on weather predictions. (RT 158.)

On the key question of whether the SFEC project must be denied certification on public health grounds, Intervenors' witness stated that this option is *not* the Commission's only course of action to protect public health, even if offsets from playground resodding and diesel bus/truck offsets are infeasible. (RT 152.) His opinion is that significant health effects result from poverty, so focused economic benefits from the project would be an appropriate, if not fully compensatory, measure to mitigate the project's impacts. (RT 152.)

¹⁰⁴ Transcript references are to 9/12/95 unless otherwise indicated.

3. Commission Discussion.

Of the public health issues, none has created more controversy than PM_{10} emissions from the project. The purposes of this section are to expand upon the Commission's reasoning in finding that the project causes no significant air quality impacts from PM_{10} emissions, as well as to address particular points raised by the Intervenors.

For the purpose of assessing a project-related health impact and its significance, it is important to distinguish between, on the one hand, short-term, acute, health effects addressed by the 24-hour 50 ug/m^3 standard, and on the other hand, the long-term, chronic, health effects addressed by the annual average 30 ug/m^3 standard.

It should be understood that the epidemiological studies offered by the Intervenors' (Ex. 22, 23, and 24) deal generally with two sets of statistics. One data base consists of health records, including death records. The other data base is air pollution information, including specific information about particulates. By cross-matching data, the study attempts to determine whether there is an association between an air quality event or condition and a human health condition. Generally, given the statistical method, a "cause and effect" is not asserted, but rather a statistical *association*.

The Intervenors have the burden of establishing the applicability of these studies to this particular case. (Cal. Code Regs., tit. 20, § 1748(f).) The Intervenors presented three epidemiological studies (Ex. 22, 23 and 24) to support their position about the health impacts of PM_{10} .¹⁰⁵ Exhibit 22, for example, is a 1987 statistical study using annual mortality rates in various cities compared to annual average concentrations of particulates. The data points in Figure 2 of the study are all concentrated within $50 - 100 \text{ ug/m}^3$ range. The average annual

¹⁰⁵ In reality, California air quality standards encompass the levels recommended in these studies. California studied PM_{10} thoroughly and adopted the nation's most stringent PM_{10} regulations in 1982 - 1983. California's standards remain at the forefront of health-based regulation.

PM₁₀ concentration in San Francisco is 30 ug/m.³ The study had no data points as low as 30 ug/m.³

Exhibit 24 made the same type of comparison for London, England, Ontario, Canada, Steubenville, Ohio, Philadelphia, Pennsylvania, San Jose and Los Angeles. The annual mean concentrations for London ranged from a high of 270 ug/m³ to below 70 ug/m³; the annual mean was 70 ug/m³ in Ontario; Steubenville and Philadelphia were each at 111 ug/m³; San Jose data was not stated in ug/m³; and Los Angeles was 65 ug/m³. There were no cities in the study with annual PM₁₀ concentrations as low as San Francisco's at 30 ug/m³.

Exhibit 23 compared data on particulate concentrations against statistics showing a change in death rate or other indicators of respiratory disease. The study concluded a statistical association and then attempted to establish an association of increased health impact for each 10 ug/m³ increase in PM₁₀ concentration. The authors of this study cite the foregoing two studies and others concerning the association of mortality/health impacts with high annual concentrations of PM₁₀.

Based upon a reasonable reading of the Intervenors' exhibits and the CARB PM₁₀ study, the Commission is not convinced that the thrust of the studies -- the association of relatively high levels of annual average concentrations (50 - 110 ug/m³) for the studied cities and their higher mortality rates -- indicates that there is a scientific basis to expect similar mortality rates in the San Francisco situation where annual PM₁₀ concentrations are much lower at 30 ug/m³.^[106] Nor should health effects from lower long-term, chronic exposure be escalated to suggest dire health effects from a short-term high exposure.

The Commission believes that the CARB studies that led to the adoption of the State's PM₁₀ standards captured the significance of data about short-term and long-term health effects

¹⁰⁶ Pope is quoted as saying, " I'm getting more convinced as time goes on that it's the long-term chronic exposure that's most important in terms of real loss of health and loss of life." *Environmental Science & Technology* Vol. 29, No. 8 (1995), p. 361. (In the administrative record.)

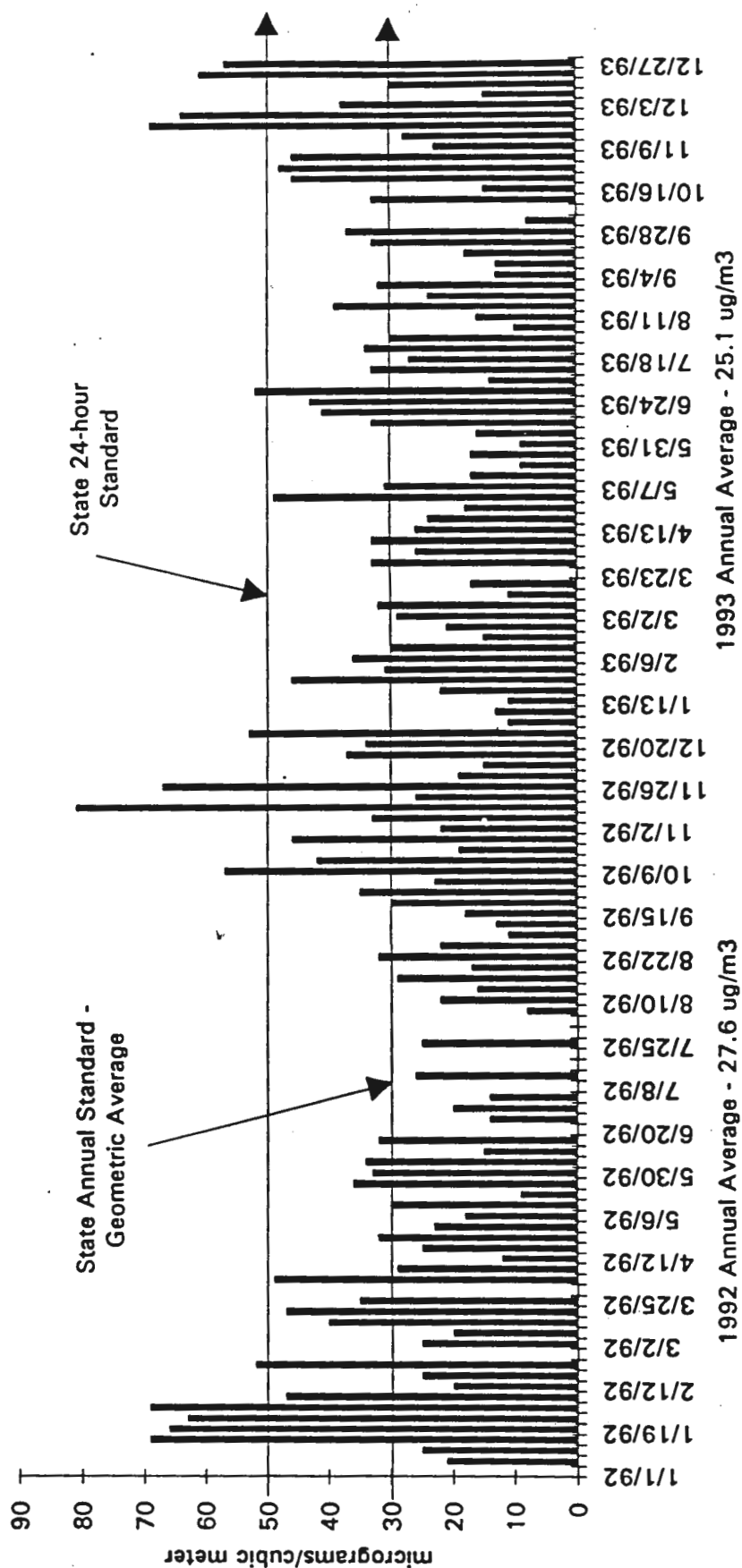
and established two different and appropriate standards to deal with each. On the basis of the studies presented by the Intervenors, the City of San Francisco has an annual average concentration well below so many other cities used in the study for mortality effects.

The Commission has reduced CARB data (FSA, Vol. I, AIR QUALITY, Appen. B) for ambient 24-hour PM_{10} levels at the San Francisco monitoring station for 1992 and 1993 to a bar graph in PUBLIC HEALTH FIGURE 1 to give a pictorial history of PM_{10} over those two years. Each bar represents the monitored level of PM_{10} , based on samplings taken every six days. The missing bars represent days from which data was not obtained. The height of the bar represents the concentration of PM_{10} . A reference line is shown at 30 ug/m^3 , which is the state annual average standard. A second reference line is at 50 ug/m^3 , representing the state 24-hour standard.

While this bar graph is informative as to the number and level of violations of the 24-hour standard, other information is more telling in determining what constitutes a "significant" impact.

PUBLIC HEALTH FIGURE 1

Ambient 24-hour PM10 Levels - San Francisco, 1992 & 1993



The fact that the District, and the San Francisco monitoring location, meet the state annual average standard of 30 ug/m^3 is *extremely* important. Overall, it means that for the long-term, chronic health effects of PM_{10} exposure, San Francisco and the District are *not* exposed to unhealthy levels of PM_{10} which would produce decreased breathing capability, increased respiratory illness, or lifetime risk of cancer.

Given the nature of the averaging process,¹⁰⁷ for any day on which there is a PM_{10} emission "spike" causing a violation there must be a substantial number of days *below* 30 ug/m^3 in order for the year long average to be below the annual average standard. On November 14, 1992, there was a one day violation of the 24-hour standard at 81 ug/m^3 . In order for that high concentration to be "averaged out" so that the 30 ug/m^3 standard is met means that, for example, there would have to be 10 days of ambient PM_{10} 5 ug/m^3 *below* the 30 ug/m^3 standard. Alternatively, there could be 5 days at 10 ug/m^3 below the annual standard, or 20 days at 2.5 ug/m^3 below the standard.

The point is that in order to achieve the annual average standard, any violation of the state 24-hour standard (or even exceedence above 30 ug/m^3) requires a substantially greater number of days *significantly lower* than the annual standard. Thus, every year there are a far greater number of days *lower* than the annual average standard which was set as a level to protect health in the most sensitive population. The SFEC project will not change those better-than-annual-standard days in any significant way.

The bar graph also shows that there are 14 violations in the two years' data. Dr. Fairley acknowledges that such violations are caused by wood smoke, vehicles, ammonium nitrate and unique weather conditions. (RT 157 - 158.)

¹⁰⁷ The Commission is aware that the California annual average standard is computed using a geometric mean, instead of an arithmetic mean. Since there is likely greater general public understanding of arithmetic averaging, the Commission will discuss the data in an arithmetic mean context since to do so does not change the probative effect of the data.

The Intervenors' studies suggest that PM_{10} will cause short-term, acute health effects and may aggravate symptoms in those with chronic respiratory disease. However, the evidence also demonstrates that during any of the violations shown on the bar graph if there were a switch to turn "off" the SFEC project and remove all its emissions the health effects would not be noticeably different. Nor, if the project had been switched "off" prior to a violation would turning it "on" during a violation cause a noticeable change or addition to the health effect of the pre-existing violation. In every scenario, the other causes of the ambient winter PM_{10} violation overwhelm the project contribution. Dr. Fairley described the measures he believes appropriate to control the winter violations, namely, no wood burn days enforceable with tickets and possibly limitations on driving. (RT 158.)

As stated before, the measures by Dr. Fairley require lifestyle changes society-wide. Social questions such as this as well as the magnitude of the necessary enforcement effort are among the reasons that further PM_{10} abatement is under debate. This Commission does not have the legal authority nor would it presume to declare that Dr. Fairley's suggestions or any other well-intentioned measures should be the law of this State.

The Commission is aware that PM_{10} abatement measures like those suggested by Dr. Fairley are under review not only at a District level but also at CARB. All of the "easy" PM_{10} abatement has been accomplished already, including requiring industrial stationary sources to convert from distillate fuel to natural gas.

However, the Commission does believe that in considering how to further abate PM_{10} the SFEC project represents a positive approach. This project will use state-of-the-art technology to reduce emissions, will replace an older, more polluting powerplant that is less efficient and more costly to update thus displacing 8 tpy of PM_{10} from other PG&E San Francisco facilities and an additional 12 tpy of PM_{10} from PG&E's system generation, and offsets precursor emissions of secondary PM_{10} .

In addition, the SFEC project will result in air quality enhancement by resodding two local playgrounds and providing a long-term economic benefit package for the Bayview Hunters Point community at large. (See, ENVIRONMENTAL JUSTICE section.) This community benefits package is similar to the solution suggested by Dr. Fairley.

Thus, the Commission finds while there will be an impact in the adding of project PM_{10} emissions into the local area, that impact is insignificant in terms of public health, whether project-specific or cumulative. The scientific evidence supports the conclusion that the project can be operated in a manner which will not endanger the health of any resident of Bayview Hunters Point. The record does not support the unfounded assertions that the project emissions will cause innumerable deaths, cancer, or injury to children. To the extent there is a winter time PM_{10} problem, this project will not be the culprit. From a public health perspective, its presence or absence would be unnoticeable.

FINDINGS AND CONCLUSIONS

Based upon the persuasive weight of the evidence of record, the Commission reaches the following findings and conclusions:

1. Federal and State ambient air quality standards reflect levels adequate to protect public health.
2. California air quality standards are at least equivalent to, and in many instances more stringent than federal standards.
3. The state standards are intended to protect those members of the population considered to be at highest risk to adverse health effects from exposure to air pollutants.
4. No adverse health effects, even in sensitive members of the population, are expected from a pollutant as long as that pollutant's level does not exceed the applicable standard.
5. The project meets state and federal air quality standards.
6. The San Francisco area experiences violations of the state 24-hour PM_{10} standard.

7. Violations of the 24-hour PM_{10} standard during the winter are primarily caused by wood smoke, vehicles, ammonium nitrate, and unique weather conditions.
8. These violations will occur with or without operation of the SFEC project.
9. These violations may be correctable through measures such as driving limitations and "no burn" days unrelated to the SFEC project.
10. The SFEC project will displace PM_{10} emissions from existing powerplants, as well as offset precursor emissions of secondary PM_{10} .
11. The SFEC project will provide air quality enhancements for PM_{10} through the resodding of two local playing fields.
12. The evidence does not persuasively establish that project emissions will result in adverse health effects, even to sensitive segments of the population.
13. With the implementation of the Air Quality Conditions of Certifications, the project will comply with all laws, ordinances, regulations and standards intended to protect public health set forth in APPENDIX: LORS of this Decision.

HAZARDOUS MATERIALS MANAGEMENT

This section reviews whether the delivery, storage, or use of hazardous materials could potentially result in adverse impacts to the public. If potential impacts are identified, feasible mitigation measures must be implemented to reduce impacts to insignificant levels in compliance with applicable law. SFEC and Staff proposed several mitigation measures which are included in the Conditions of Certification.¹⁰⁸ The Intervenor requested additional mitigation that is discussed in the Summary of Evidence below.

1. Setting.

The factors relevant to assessing potential public health impacts from a hazardous materials release are: 1) the local meteorology; 2) terrain characteristics; and 3) the proximity of population centers and sensitive receptors.

Meteorology. Meteorological conditions include ambient temperature, wind speed, wind direction, and atmospheric stability which affect the extent to which accidentally released materials would be mixed or dispersed into the atmosphere.¹⁰⁹ (FSA, Vol. I, pp. 285-286.) Temperatures in San Francisco range from the low 50s to low 70s in the summer and range from the mid-40s to mid-50s in the winter. (AFC, p. 5.1-3.)

Terrain. The site is relatively flat with an elevation ranging from 5 to 15 feet above mean lower low water (MLLW) level. (AFC, p. 3-11.) Emissions of hazardous materials

¹⁰⁸ Staff filed Supplemental Testimony to update its initial analysis. (7/13/95 RT 194: HAZMAT Supp. Test.)

¹⁰⁹ Annual wind roses for the meteorological stations near the proposed site show low wind speeds (1.5 meters/sec or below) approximately 17-21 percent of the year. Average wind speeds are 3.5-3.7 meters/sec and blow mostly from the west-southwest.

during accidental releases will be from evaporating pools at ground level so that terrain effects on the estimated concentrations are not significant.¹¹⁰

Sensitive Receptors. Sensitive subgroups include the very young, the elderly, and those with existing illnesses. (FSA, Vol. I, p. 287.) The nearest residential area is located about 2,072 ft (622 meters) to the southwest of the site. See HAZMAT FIGURE 1. The nearest sensitive receptor is the Youngblood Coleman Playground at Bayshore and Evans Streets. This playground lies just outside the vulnerability zone¹¹¹ (446 meters from the aqueous ammonia storage tank). (*Id.*, p. 288.)

The next closest sensitive receptor is Malcolm X Academy School (former Sir Francis Drake Elementary School) located approximately 0.65 mile (1,045 meters) south of the site. HAZMAT FIGURE 2 shows the locations of most sensitive receptors within a two mile radius of the proposed project. (FSA, Vol. I, p. 288.)

The new natural gas pipeline will extend to the project from either the existing PG&E gas line or the Mojave Pipeline. The new pipeline will run underground approximately 3,200 feet from the existing PG&E gas line connecting at the corner of Phelps and Evans along Mendell to Cargo to the project. If the Mojave Pipeline extension is approved, the new pipeline will run 450 feet to the project from the Hunters Point meter adjacent to the site. (*Ibid.*)

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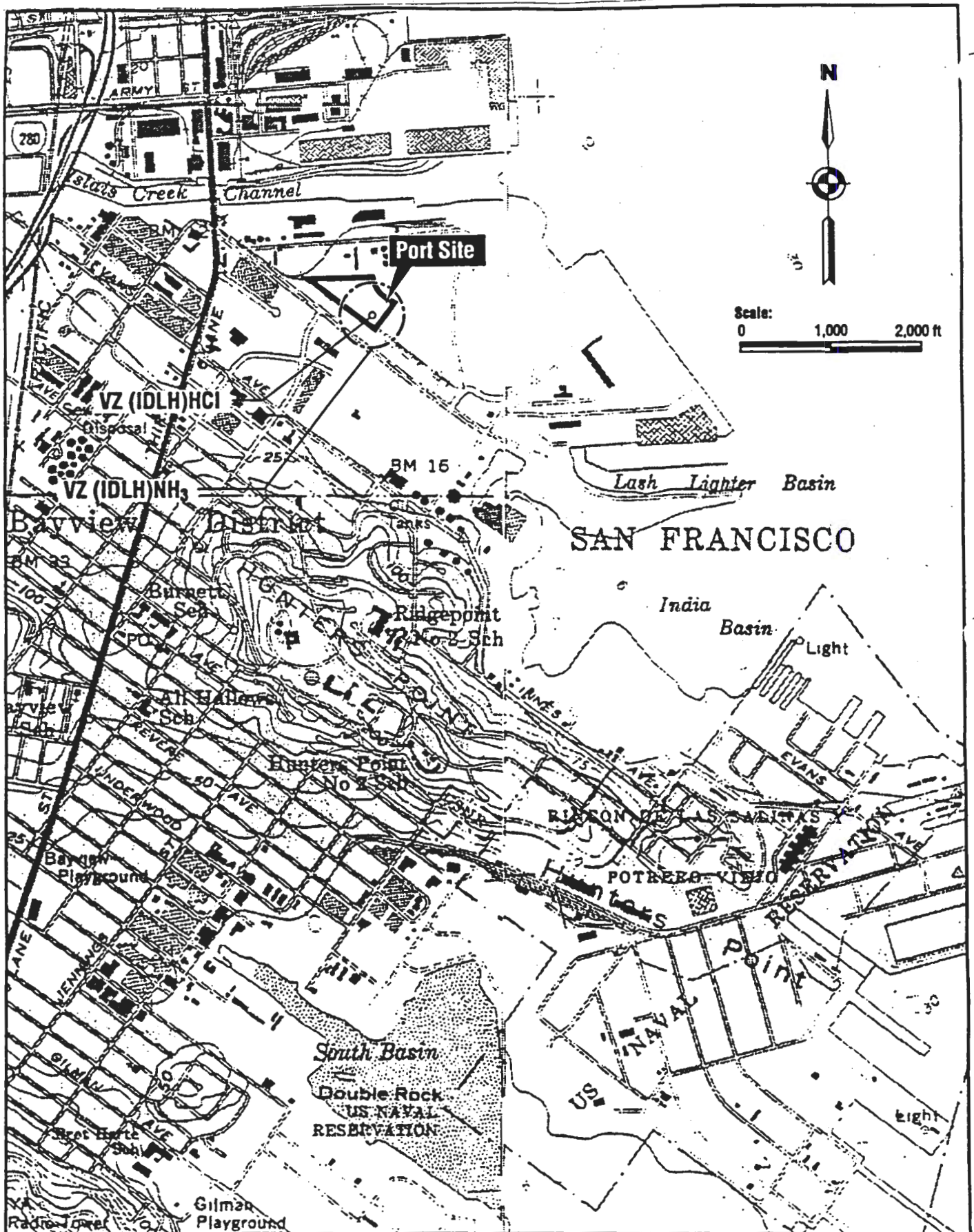
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¹¹⁰ While the location of elevated terrain (above release height) is often an important factor at higher altitudes, terrain effects are not included in EPA approved neutrally buoyant dispersion models for estimating concentrations of pollutants emitted from evaporating pools at ground level. (FSA, Vol. I, p. 286.)

¹¹¹ Vulnerable zones are calculated using estimated emission release rates, levels of concern established by the EPA, and worst case meteorological conditions. These zones are then plotted on the site plan and compared to the sensitive receptor locations in the vicinity to determine whether the public is at risk. (AFC, p. 5.6-19.)

1





84-10486.095
7-13-94 m/nw:3

(Source: AFC, Figure 5.6-3.)

Figure 5.6-3
Vulnerable Zones (VZ) for
Hazardous Materials at Port Site

2. Potential Impacts.

HAZMAT TABLE 1 lists some of the chemicals used by the project. SFEC and Staff identified additional chemicals during the review process and agreed that the project will use only the following chemicals unless alternatives are approved by the Commission compliance staff¹¹²:

- Ammonium hydroxide (aqueous ammonia, 25 % NH_3), 15,000-gallon bulk storage tank
- Sodium hydroxide (liquid, 50% NaOH), 6,000-gallon bulk storage tank
- Sulfuric acid (liquid, 93 % H_2SO_4), 12,000-gallon bulk storage tank
- Sodium hypochlorite (liquid, 10% NaOCl), 6,000 gallons
- Ammonium bifluoride (NH_4HF_2)
- Organic oxygen scavenger COR-TROL 778P: contains Hydroquinone (1,4-benzenediol), 500-gallon storage tank
- Neutralizing amine OPTI-MEEN: contains Morpholine and Cyclohexylamine, 500-gallon storage tank
- Scale inhibitors various including: BETZ 22K which contains a patented calcium phosphate inhibitor as primary ingredient; Nalco 1191 series of phosphate and polyphosphates; and Grace Dearborn 994 series which contains potassium hydroxide, tripotassium phosphate, and an organophosphonic acid; all stored in a 1,000-gallon storage tank
- Mineral insulating oil, 18,000 gallons
- Detergents, various, 350 gallons

¹¹² Except for natural gas, chemicals will be stored in specially designed storage facilities: bulk chemicals in above ground storage tanks and other chemicals in their delivery containers. The vertical, cylindrical, field-erected storage tanks are stainless steel or carbon steel with a protective interior coating. All hazardous chemical storage areas are surrounded by curbs or dikes sized to hold the entire contents of the largest single storage tank in order to contain leaks or spills. Drains from the chemical storage and feed areas are directed to the neutralization facility for treatment and then to the wastewater collection system for disposal. All drains and vent piping are trapped and isolated to eliminate leaks and vapors; containment areas are drained to either an oily waste collection sump or to the wastewater treatment area. (FSA, Vol. I, p. 282.)

- Laboratory reagents, various, generally less than 5 pounds
- Polymers (anionic, cationic, and nonionic), 100- to 200-gallon storage tanks; 50-pound bags (200 pounds total)
- Hydrated lime (calcium hydroxide, $\text{Ca}(\text{OH})_2$), 10,000 pounds
- Alum (aluminum sulfate, $\text{Al}_2(\text{SO}_4)_3 \cdot 14\text{H}_2\text{O}$), 12,000-gallon storage tank
- Diatomaceous earth (Na_2HPO_4), 3,000 pounds
- Phosphate and metal oxide dispersant Balanced Polymer 54000: contains Sodium hydroxide (NaOH), 1,000-gallon storage tank
- Cyclohexylamine, 500-gallon storage tank
- Morpholine, 500-gallon storage tank
- Diesel fuel #2, one 100-gallon tank for booster pump and one 200-gallon tank for standby pump
- Natural gas
- Betz BP-54000 series polymer (contains sodium hydroxide), 400 gallon container provided by the manufacturer
- Betz Bio-Trol 88P (granular 1-bromo-3-chloro-5,5-dimethylhydantoin) 3,600 pounds in a container provided by the manufacturer, installed in-line in the water treatment system
- Betz Slimicide C-94 (aqueous solution of sodium bromide), 400 gallon container provided by the manufacturer
- Sodium Bisulfite

Chemicals that may cause off-site adverse health effects are considered hazardous materials for purposes of this analysis.¹¹³ Except for *aqueous ammonia*, *sodium hypochlorite*, *natural gas*, and *sulfuric acid*, the materials listed above pose minimal potential for off-site

¹¹³ The safety of workers on-site is addressed in the section on Industrial Safety in this Decision.

Table 5.6-3 Chemicals Stored or Used at the Site

Chemical	Use	Approximate Quantity Stored	Form/Type
Ammonium hydroxide (NH ₄ OH)	Selective catalytic reduction	15,000-gallon bulk storage tank	Liquid aqueous ammonia, 25 % solution
Sodium hydroxide (NaOH)	Boiler and wastewater treatment pH control	6,000-gallon bulk storage tank	Liquid, 50% NaOH
Sulfuric acid (H ₂ SO ₄)	Circulating water pH control and cooling water treatment to adjust pH	12,000-gallon bulk storage tank	Liquid, 93% H ₂ SO ₄
Sodium hypochlorite (NaOCl)	Biocide for condenser cooling water system and wastewater treatment	6,000 gallons	Liquid, 10% NaOCl
Organic oxygen scavenger and neutralizing amine	Feedwater oxygen scavenger	500-gallon storage tank	Liquid
Scale inhibitors, various	Reduce scale formation in the circulating water system	1,000-gallon storage tank	Liquid
Mineral insulating oil	Transformer systems	18,000 gallons	Liquid
Various detergents	Combustion turbine compressor cleaning	350 gallons (for periodic cleaning)	Liquid
Laboratory reagents	Various	Generally less than 5 pounds	Liquid and granular
Polymers (anionic, cationic, and nonionic)	Wastewater treatment	100- to 200-gallon storage tanks; 50-pound bags (200 pounds total)	Liquids and powders
Hydrated lime	Wastewater treatment, solids dewatering	10,000 pounds	Powder, 93% Ca(OH) ₂
Alum Al ₂ (SO ₄) ₃ • 14H ₂ O	Wastewater treatment, chemical precipitation	12,000-gallon bulk storage tank	Liquid, Al ₂ O ₃ 8.5 %
Diatomaceous earth (Na ₂ HPO ₄)	Precoat solids, dewatering	3,000 pounds	Powder
Phosphate and metal oxide dispersant	Minimizes iron deposition within the boiler system	1,000-gallon storage tank	Liquid
Cyclohexylamine and morpholine	Condensate system corrosion protection	500-gallon storage tank	Liquid
Diesel Fuel No. 2	Fire pumps	One 100-gallon tank for booster pump One 200-gallon tank for standby pump	Liquid

(Source: AFC, Table 5.6-3.)

impacts because they will be transported and stored in solid form and/or small quantities and/or have very low toxicity.¹¹⁴ (FSA, Vol. I, pp. 294-295.)

The use of aqueous ammonia can result in the formation and release of toxic gases in the event of a spill due to its relatively high vapor pressure and the large amount of aqueous ammonia that will be stored and used on-site.¹¹⁵ (FSA, Vol. I, p. 295.)

The aqueous mixture of sodium hypochlorite poses a minimum risk of off-site impacts in the event of a spill because of its low vapor pressure and low concentration.¹¹⁶ However, the accidental mixing of sodium hypochlorite with acids could result in toxic gas. (*Ibid.*)

The use of natural gas can result in fires and/or explosion. While the risk of on-site natural gas accidents can be minimized, concern exists about the transfer of natural gas through underground pipelines that are buried beneath streets in the surrounding community. (*Ibid.*)

Although sulfuric acid was not considered to pose a risk of off-site impacts because of its relatively low vapor pressure, Staff conducted a quantitative assessment of the potential for off-site impacts due to concerns raised by the local community. (*Id.*, p. 296.)

The evidence presented by SFEC indicates that the probability of an accidental release occurring during the transport of hazardous materials is extremely low. (SFEC, "Screening Assessment of Hazards of Transport of Hazardous Materials, Testimony of Weatherwax, June,

¹¹⁴ Initially, SFEC identified hydrochloric acid (HCl) used to clean HRSGs as a hazardous material that could pose potential off-site health risks; however, HCl has been withdrawn from consideration in this project. (FSA, Vol. I, p. 296.) Further, the scale inhibitors, which prevent formation of mineral coating inside pipes, are restricted to the group of chemicals identified as BETZ 22K, Nalco 1191 and Grace Dearborn 994 series. (*Id.*, p. 280.)

¹¹⁵ The use of aqueous ammonia instead of the much more hazardous anhydrous ammonia (not diluted with water) is itself a mitigation measure since it is used to control NO_x emissions from the boiler stack. (FSA, Vol. I, p. 295.)

¹¹⁶ Sodium hypochlorite is used in water treatment as a substitute for chlorine gas which is much more toxic; thus, an aqueous solution of sodium hypochlorite is itself a mitigation measure. (FSA, Vol. I, p. 295.)

1995.) However, the Intervenor raised concerns about potential cumulative impacts resulting from accidents involving two or more vehicles carrying hazardous materials or other potential releases during transport.

3. Summary of Evidence and Proposed Mitigation.

Aqueous ammonia. Aqueous ammonia is used in the selective catalytic reduction system of the HRSG to control NO_x emissions. Accidental release of aqueous ammonia could result in the evolution of ammonia gas due to its high vapor pressure under ambient conditions. To reduce risks from accidental releases, on-site storage consists of a 15,000 gallon bulk storage tank surrounded by a bermed containment basin that covers an area of 750 square feet, large enough to contain all the ammonia in the storage tank. (FSA, Vol. I, pp. 283, 296; Staff's HAZMAT Supp. Test., p. 2.)

The most likely spill scenario is a release during transfer between the delivery vehicle and storage vessel. Aqueous ammonia will be delivered via tanker truck to an unloading pad adjacent to the storage tank. A sump with a surface area of 750 square feet is located at the back of the pad, next to the storage tank containment basin. The transfer system includes piping with automatic and manual check valves to secure the system in the event of a rupture.¹¹⁷ In the worst case scenario, a tank line could rupture and all the ammonia contained in the tank would pool in the sump or bermed area. (FSA, Vol. I, p. 283.)

Automatic alarms are incorporated into the design of the unloading and storage systems to indicate the presence of harmful vapors. A vapor suppression foam system is also incorporated to prevent ammonia vapors from entering the atmosphere and moving off-site. In the event of a release from the truck, piping, or storage tank, this vapor suppression system will

¹¹⁷ Seismic safety of the hazardous materials storage tanks and piping systems is addressed in the Facility Design section of this Decision. (See, 7/13/95 RT 216-219; FSA, Vol. I, pp. 305-307.)

spray enough foam to cover the combined delivery/storage area within a few seconds.¹¹⁸ (*Id.*, p. 284.)

The combined containment areas cover 1500 square feet, which can hold the entire contents of the tank plus the vapor suppression foam sprayed onto the surface of the spill, the neutralizing agent, expected standing rain water, plus a margin of safety. Any material collected within the bermed area will flow to a sump for neutralization and disposal. (*Ibid.*; HAZMAT Supp. Test., p. 3.)

Staff analyzed the effectiveness of SFEC's proposed mitigation measures based on the worst case release scenario, assuming the temperature of released ammonia would be 90° F.¹¹⁹ Staff further assumed containment in the combined transfer and storage area but no vapor suppression foam. (FSA, Vol. I, pp. 296-297.)

To determine the level of significance of potential exposure, Staff used a value of 75 parts per million (ppm) as recommended by the National Research Council (NRC). Under the NRC short-term public emergency limit (STPEL), exposure to ammonia gas at a concentration of 75 ppm for 30 minutes represents the maximum level of exposure that would not pose a significant risk of adverse effect. (*Id.*, p. 297.)

The American Industrial Hygiene Association has also developed Emergency Response Planning Guidelines (ERPG) for ammonia. The ERPG-1 level of 25 ppm is intended to protect against any symptoms other than mild transient irritation. The ERPG-2 level of 200 ppm is calculated to protect against irreversible effects and to safeguard an individual's ability to take protective action. Many California agencies use the ERPG-2 level as the Level of Concern

¹¹⁸ With stabilizer added to the foam, its effectiveness can last for hours in heat and bright sunlight. (FSA, Vol. I, p. 284)

¹¹⁹ FEMA Guidelines suggest that materials in storage vessels exceed ambient temperatures by about 20° F on a sunny day.

(LOC) in determining a vulnerability zone and recommend or require its use in the preparation of a Risk Management and Prevention Plan (RMPP). (*Ibid.*; 7/13/95 RT 207, 208-209.)

The Intervenors took the position that the appropriate LOC should be ERPG-1, which is 25 ppm. An expert witness for the Intervenors¹²⁰ testified that a concentration of 25 ppm or less is discernable to the public and those who are exposed will need notification in the event of a release. (7/21/95 RT 190, 209-210.) Staff's expert¹²¹ testified that the 75 ppm LOC is adequate to protect sensitive individuals including asthmatics from being incapacitated by aqueous ammonia vapors. (7/13/95 RT 211.) Further, Staff's witness indicated that the notification program and "good neighbor" policy included the Conditions of Certification will ensure full disclosure of potential hazards and emergency response plans. (7/13/95 RT 227-228; Condition HAZ-7.)

Using EPA's SCREEN Model, Version 2.0 (EPA 1992), Staff determined that if a spill were to occur on-site within either the delivery area or the tank containment area, concentrations of ammonia at the nearest public receptor (commercial facilities about 210 meters [689 feet] southwest of the ammonia tank), nearest home (654 meters [2145 feet] to the west) and at the nearest school (1103 meters [3619 feet] to the south) would be 127 ppm, 17 ppm, and 7.5 ppm, respectively with standard mitigation.¹²² The use of the foam spray system would lower these

¹²⁰ Richard Lee, Senior Industrial Hygienist, for the San Francisco Department of Public Health.

¹²¹ Alvin Greenberg, Ph.D., who conducted the analysis and testified for Staff, was cross-examined by the Intervenors. (7/13/95 RT 203 et seq.)

¹²² In its HAZMAT Supplemental Testimony, Staff revised its dispersal analysis. The initial analysis was based on a simultaneous failure of both the delivery and storage tank systems which would spill into 1500 square feet of combined containment area; the revised testimony covers failure of one system with a spill covering 750 square feet, a more likely scenario. The initial analysis predicted an airborne concentration of 36 ppm at the nearest residence at 2145 feet; the revised analysis shows the lower results of 17 ppm as stated in the text above. (HAZMAT Supp. Test., p. 3; FSA, Vol. I, p. 299.) Nevertheless, the Intervenors expressed concern regarding exposure to 36 ppm. (7/13/95 RT 211-212.) Staff's witness indicated that while an asthmatic could breathe ammonia vapor at 36 ppm for 30 minutes, this scenario was modeled with standard mitigation and did not include the foam vapor reduction system that would reduce the concentration by 90 percent to 4 ppm, which would be barely noticeable as an odor at the nearest residence. (7/13/95 RT 211, 225-226; FSA, Vol. I, p. 299.)

concentrations to 12.7 ppm, 1.1 ppm, and 0.75 ppm, respectively, thus reducing the risk of public harm to insignificance. (HAZMAT Supp. Test., p. 4.)

The foam spray system operates by manually opening the system control valve at the unloading station or in the control room.¹²³ (FSA, Vol. I, p. 284.) The Intervenor requested a portable foam spray system (consisting of 5-gallon containers with a hose) due to: 1) concern about ammonia leaks from valves or pipes; 2) leaks from a delivery truck away from the transfer and storage areas; or 3) in the event that a major disaster would prevent the San Francisco Fire Department from responding quickly.¹²⁴ (7/21/95 RT 188-189, 207-208.) Staff's expert testified that a mobile foam system is unnecessary because it is highly unlikely that a spill of aqueous ammonia would occur elsewhere than in the transfer area. (7/13/95 RT 222-223.)

Although the issue of portable foam sprays was contested, the Intervenor expected the parties to resolve the dispute in the context of developing the RMPP which must be submitted to the Commission and the San Francisco Department of Public Health prior to the introduction of hazardous materials to the site.¹²⁵ (7/13/95 RT 220-222; 7/21/95 RT 215.)

Sodium Hypochlorite. Sodium Hypochlorite will be used for water treatment to control the growth of algae and other microorganisms and to control pH or acidity. The storage, handling, and use of sodium hypochlorite can cause a release of chlorine gas if it is accidentally mixed with acids. SFEC will submit a detailed Safety Management Plan which requires separate storage facilities for incompatible materials to minimize the opportunities for accidental mixing and reduce the risk of potential impacts to insignificant levels. (FSA, Vol. I, p. 301.)

¹²³ The Safety Management Plan and the Emergency Response Plan include employee training and procedures for emergency responses in the event of hazardous materials release, including on-site spill containment such as operation of the foam spray system. (FSA, Vol. I, pp. 304-305.)

¹²⁴ Under ordinary circumstances, the response time of the San Francisco Fire Department's Hazardous Materials Response Team is estimated at 10-15 minutes. The fire stations that serve the site can respond in about one minute, although they may not necessarily be part of a hazardous materials response. (FSA, Vol. I, p. 305.)

¹²⁵ Condition HAZ-8 requires SFEC to submit the RMPP for concurrent approval by the Commission and the San Francisco Department of Public Health.

Sulfuric Acid. Sulfuric acid proposed for use at the facility is a 93 percent aqueous solution that is added to cooling water to control scaling. It will be delivered by tanker truck¹²⁶ and stored in a 12,000 gallon steel bulk storage tank surrounded by a bermed containment basin large enough to contain all the sulfuric acid in the event of a spill. Neutralization of spilled sulfuric acid will require appropriate safety procedures to prevent violent chemical reactions. However, the vapor pressure of 93 percent aqueous sulfuric acid is very low so the risk of off-site exposure to an on-site spill would be insignificant. (FSA, Vol. I, p. 300.)

Due to public concern, Staff modeled potential dispersion concentrations using a LOC of 0.245 ppm recommended by Cal/EPA to protect even sensitive individuals from respiratory effects such as bronchoconstriction. (*Ibid.*) Results of the modeling show that airborne concentrations at all off-site receptors would be many orders of magnitude less than the LOC. Even at 50 meters from a spill, the airborne concentration of 9.25×10^{-5} ppm would be 0.00038 (1/2648) of the LOC. Using the proposed Cal/EPA Level 1 value of 0.03 ppm, all off-site receptors - including sensitive individuals - would not experience even small changes in respiratory function. (*Ibid.*)

Staff also reviewed the accident history of sulfuric acid at facilities across the United States. The data indicate that while sulfuric acid is the most widely used and transported hazardous material in the United States, the number of injuries resulting from transportation accidents remains very low. (HAZMAT Supp. Test., p. 4.) Although there were several on-site releases reported,¹²⁷ many of those events involved co-release of other substances as in the 1992 Rhone-Poulenc fire in the Bay Area. (FSA, Vol. I, p. 300; 7/13/95 RT 213-214.) To prevent accidental mixing of incompatible materials, SFEC's Safety Management Plan will

¹²⁶ There will be 30 deliveries per year by tanker truck. (7/13/95 RT 215-216.)

¹²⁷ The data did not differentiate between concentrated sulfuric acid, aqueous sulfuric acid, Oleum, or mixtures of sulfuric acid and other materials. (FSA, Vol. I, p. 300.)

require physical separation of stored chemicals in separate containment areas at the project site. (AFC, pp. 5.6-17 and 5.6-23.)

Sulfuric acid is not a flammable substance by itself although it is highly reactive and contact with combustible materials may result in ignition. To prevent accidental ignition, Staff proposed a Condition of Certification to prohibit the storage, usage, and transportation of combustible or flammable materials within 100 feet of the sulfuric acid tank. (*Ibid.*)

Natural Gas. Natural gas poses a fire and/or explosion risk as a result of its flammability. While natural gas will be used in significant quantities, it will not be stored on-site. The risk of fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable law and the implementation of effective safety management practices including: 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems. (FSA, Vol. I, p. 301.)

Start-up procedures will require air purging of fire boxes prior to start-up to preclude the presence of an explosive mixture. SFEC's Safety Management Plan will address the handling and use of natural gas to significantly reduce the potential for equipment failure resulting from improper maintenance or human error. (*Ibid.*)

Transport of natural gas via pipelines creates the potential for gas release due to mechanical failure or external forces. However, the probability of release is extremely low since the pipeline will be constructed in accordance with current standards. (*Id.*, p. 302.)

The following safety features will be incorporated into the design and operation of the natural gas pipeline: (1) while the pipeline will be designed and constructed to carry natural gas at a pressure of 400 psig, the normal operating pressure will be limited to 145 psig; (2) butt welds will be X-rayed and the pipeline will be tested with water prior to the introduction of natural gas into the line; (3) the pipeline will be surveyed annually for leakage; (4) the pipeline will be marked to prevent rupture by heavy equipment excavating in the area; and (5) valves at

the intersection of Evans and Mendell and at the meter will be installed to isolate the line if a leak occurs. (*Ibid.*)

Transport of Hazardous Materials. The Intervenors expressed concern regarding transport of hazardous materials to and from the site. SFEC anticipates that hazardous materials will be delivered by three bulk chemical suppliers with approximate delivery distances of 1.5 to 2 miles. ("Screening Assessment of Hazards of Transport of Hazardous Materials," *supra*, p. 3.) See, HAZMAT FIGURE 3 (next page). The total annual probability of spill is calculated by combining delivery frequency, delivery distance,¹²⁸ probability of truck accident per mile traveled, and probability of significant material spillage given such an occurrence. See HAZMAT TABLE 2 below.

HAZMAT TABLE 2
Probability of Accidental Spills During Transport

MATERIAL	TRANSPORT RATE (Trips/ year)	DISTANCE (miles/trip)			EXPECTED SPILLS PER YEAR		
		Hwy	Local	Total	Highway	Local	Total
Aqueous ammonia	45	48	2	50	3.3e-05*	1.4e-06	3.5e-05
Sodium hydroxide	5	18	2	20	1.4e-06	1.6e-07	1.6e-06
Sulfuric Acid	30	18	2	20	8.4e-06	9.3e-07	9.3e-06
Sodium Hypochlorite	16	18	2	20	4.5e-06	5.0e-07	5.0e-06

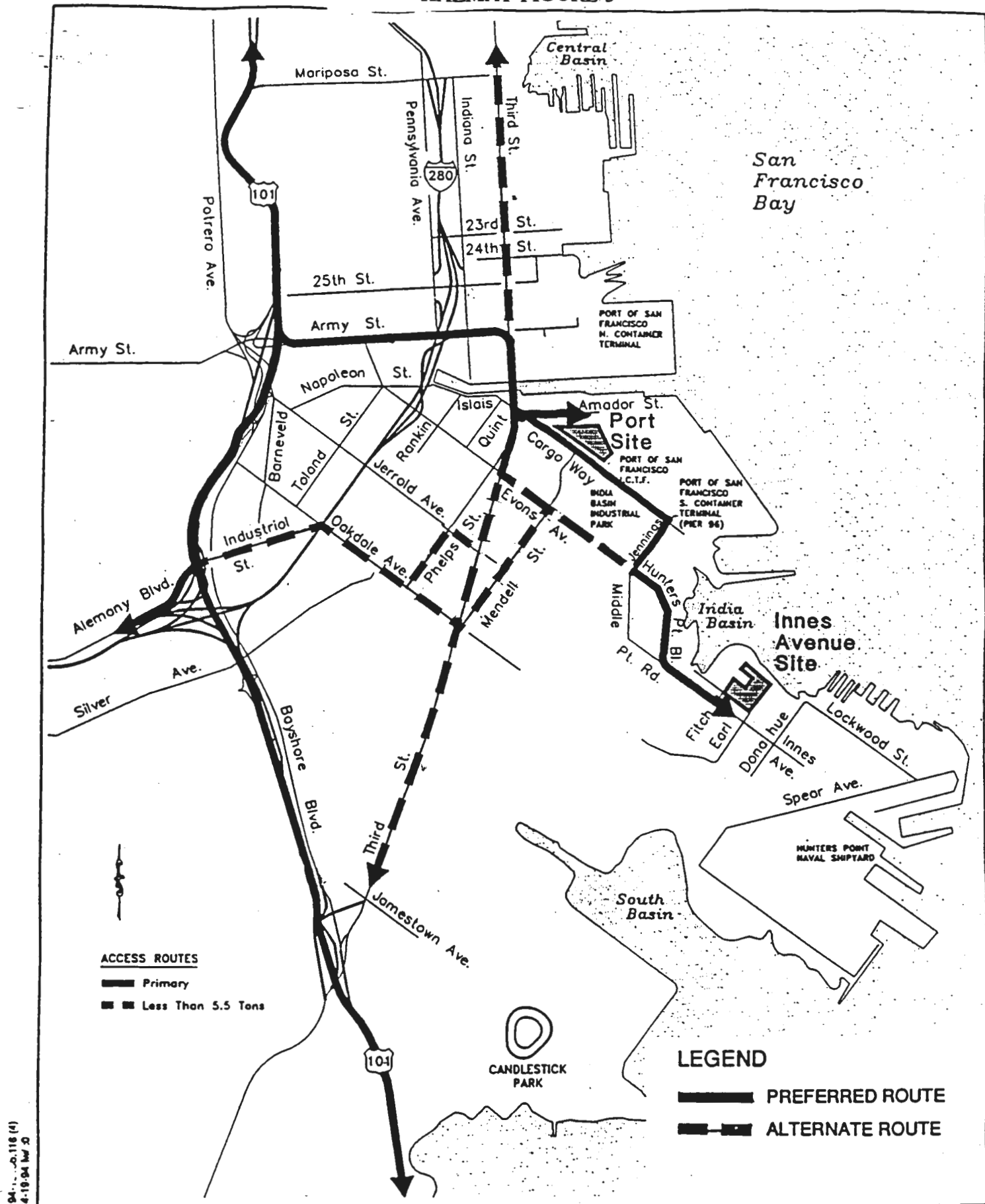
* e = 10⁻⁶ (one-in-one million)

(Source: "Screening Assessment of Hazards of Transport of Hazardous Materials," p. 3, Table 2.)

SFEC argued that hazardous transport accidents in the area are virtually non-existent although hazardous materials are regularly transported for hundreds of miles on regional

¹²⁸ The distance from the I-280 Third Street offramp to the site is conservatively estimated at two miles.

freeways which run along residential areas, including two routes (Hwy 101 and I-280) that pass within a mile of the site. The fact that hazardous materials are regularly transported in and out of Bayview Hunters Point due to industrial activity in the area does not statistically increase the



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(Source: SFEC Data Response, Dec., 1994.)

**Preferred Shipment Route
For Hazardous Materials**

risk of accidents because the number of deliveries to this project will be relatively low. (7/13/95 RT 242-243.) Moreover, SFEC's testimony indicated that the likelihood of two tankers colliding and causing a spill would be one-in-one trillion.¹²⁹ (*Id.*, p. 246.) SFEC conceded that no cumulative analysis was done since potential impacts from project-related transport are so minimal that such an analysis would be an unproductive exercise. (*Id.*, p. 242 et seq.)

4. Commission Discussion.

The Commission finds the mitigation measures proposed by Staff and SFEC conform with state-of-the-art management of hazardous materials and will comply with applicable law. The Intervenor's concern regarding the appropriate LOC for modeling dispersion of ammonia vapor was adequately addressed by the evidence that shows that no other county in California uses the ERPG-1 (25 ppm) standard;¹³⁰ moreover, the 75 ppm LOC used by Staff is much lower than the ERPG-2 (200 ppm) standard that is typically relied on by other California agencies. Thus, Staff's modeling assumptions are persuasive inasmuch as use of the conservative 75 ppm LOC results in the potential for only insignificant impacts.¹³¹

¹²⁹ Regarding a single truck accident, and assuming the worst weather conditions, at only one-and-a-half miles on the surface street from the freeway to the site, there would have to be 1500 to 3000 truck trips over the 30 year life of the project to predict a statistically significant one-in-one million likelihood of an accident. Assuming 45 truck trips per year for aqueous ammonia deliveries, for example, the total over 30 years would be about 1350 trips, fewer trips than the threshold for a one-in-one million chance of an accident occurring. (7/13/95 RT 250-252; HAZMAT Table 2.)

¹³⁰ The record is unclear whether the Intervenor's argument in favor of a 25 ppm standard included mitigation that would reduce exposure to a 25 ppm level or whether exposure to a concentration level of 25 ppm would be further mitigated to lower exposure levels. Intervenor's witness testified that "[t]here might be some question about the health effects at 25 ppm, but it's clear that 25 ppm is discernable by the public...if...they were exposed to 25 ppm, they definitely would want to know what's going on." (7/21/95 RT 190:5-9.) The witness conceded that a 25 ppm LOC may be characterized as a public warning level because vapors are discernable at that concentration. (*Id.* at 209:15-19.) Staff indicated that ammonia odor is discernable at 25 ppm but no tearing of the eyes should occur; the odor detection threshold falls within the 5-20 ppm range. (FSA, Vol. I, p. 299.)

¹³¹ Using standard mitigation without the foam spray system, potential exposure at the nearest sensitive receptor will be 10 orders of magnitude less than the 75 ppm LOC; with the foam spray system, exposure is expected to be 100 orders of magnitude less than the 75 ppm LOC.

As Staff indicated, use of this LOC ensures that the ability of sensitive individuals (including asthmatics) to evacuate or take other precautions will not be impaired in the event of a spill. (7/13/95 RT 210.) Moreover, the "good neighbor" notification policy incorporated into the Conditions of Certification addresses the Intervenors' concern that the community receive information regarding: 1) the identity of vapors that may be discernable off-site; and 2) evacuation procedures in the event of a public health emergency. (Condition HAZ-7.)

The Intervenors' request for a portable foam spray system is not supported by the evidence, which indicates that the most likely spill scenario would occur during transfer from the delivery truck to the storage tank. The foam spray system built into the transfer operation is designed to handle any accidental releases such that a portable system appears to be redundant. However, the parties may discuss this issue during RMPP review (see Condition HAZ-8), and if they agree, the portable system will be incorporated into the project at the request of the San Francisco Department of Public Health.

Regarding the Intervenors' argument that a cumulative impacts analysis is required to determine the likelihood of project-related transport accidents that could result in spills of hazardous materials, the evidence of record establishes that the potential for such accidents is not statistically significant. While the Commission recognizes that the presence of hazardous materials delivery vehicles may be cause for speculative concern, there is no scientific basis to conclude that the project-related vehicles will increase the likelihood of accidents to significant levels.

FINDINGS AND CONCLUSIONS

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

1. Hazardous materials will be delivered, stored, and handled at the project site; those posing a risk to the public include aqueous ammonia, sodium hypochlorite, sulfuric acid, and natural gas.

2. The major types of hazards associated with the delivery, storage, and handling of the hazardous materials identified in Finding 1 are toxic gas release from accidental spills and/or accidental mixing of incompatible materials, and/or fires/explosions.
3. Mitigation measures include diked containment areas surrounding storage facilities and catchment basins between the delivery vehicles and storage vessels; location and design of storage vessels; limitations on the method and frequency of delivery; training of personnel in proper safety and emergency handling of hazardous materials; and the development of a Safety Management Plan to minimize the potential for human error and equipment failure.
4. Since the most likely scenario for accidental spills of aqueous ammonia would be during delivery, the design of the unloading and storage systems includes automatic and manual shut-off valves, automatic alarms, and a vapor suppression foam spray system.
5. SFEC and the Intervenor may discuss the need for a portable foam spray system in the context of developing the required Risk Management and Prevention Plan.
6. The 75 ppm level of concern (LOC) recommended by the National Research Council (NRC) for ammonia vapor dispersion impacts is adequate to protect sensitive individuals including asthmatics from being incapacitated by aqueous ammonia vapors.
7. Staff's modeling assumptions for ammonia vapor dispersion impacts based on the 75 ppm LOC establish that implementation of the mitigation measures described in Findings 3 and 4 will reduce potential exposure at the most sensitive receptor to insignificant levels.
8. SFEC will implement a "good neighbor" policy and public notification program to provide information regarding potential hazards from accidental spills and the appropriate response and evacuation plans in the event of a public health emergency; the Intervenor's concern that a 25 ppm LOC for ammonia vapor dispersion be used to trigger a public warning process is addressed by the "good neighbor" policy.
9. The proposed state-of-the-art safety features incorporated into the design and operation of the proposed natural gas pipeline will reduce to insignificant levels the likelihood of gas release due to mechanical failure or external forces.
10. Since potential impacts from project-related transport of hazardous materials are statistically insignificant and project deliveries will be relatively low, a cumulative impact analysis is not necessary.
11. Implementation of the mitigation measures which are incorporated in the Conditions of Certification will ensure that the project does not pose a significant risk of adverse impact to public health and safety due to hazardous materials handling at the site.

12. Implementation of the Conditions of Certification will ensure that the project complies with all applicable laws, ordinances, regulations, and standards related to hazardous materials handling as identified in APPENDIX: LORS in this Decision.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall use only the chemicals, in reportable quantities, that are listed below unless alternatives are approved by the California Energy Commission's Compliance Project Manager (CPM).

- Ammonium hydroxide (aqueous ammonia, 25% NH_3)
- Sodium hydroxide (liquid, 50% NaOH)
- Sulfuric acid (liquid, 93% H_2SO_4)
- Sodium hypochlorite (liquid, 10% NaOCl)
- Ammonium bifluoride (NH_4HF_2)
- Organic oxygen scavenger COR-TROL 778P: contains Hydroquinone (1,4-benzenediol)
- Neutralizing amine OPTI-MEEN: contains Morpholine and Cyclohexylamine
- Scale inhibitors, various including: BETZ 22K which contains a patented calcium phosphate inhibitor as primary ingredient; Nalco 1191 series of phosphate and polyphosphates; and Grace Dearborn 994 series which contains potassium hydroxide, tripotassium phosphate, and an organophosphonic acid.
- Mineral insulating oil
- Detergents, various
- Laboratory reagents, various
- Polymers (anionic, cationic, and nonionic)
- Hydrated lime (calcium hydroxide, $\text{Ca}(\text{OH})_2$)
- Alum (aluminum sulfate, $\text{Al}_2(\text{SO}_4)_3 \cdot 14\text{H}_2\text{O}$)

- Diatomaceous earth (Na_2HPO_4)
- Phosphate and metal oxide dispersant Balanced Polymer 54000: contains Sodium hydroxide (NaOH)
- Cyclohexylamine
- Morpholine
- Diesel fuel #2
- Natural gas
- Betz BP-54000 series polymer (contains sodium hydroxide)
- Betz Bio-Trol 88P (granular 1-bromo-3-chloro-5,5-dimethylhydantoin)
- Betz Slimicide C-94 (aqueous solution of sodium bromide)
- Sodium Bisulfite

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

HAZ-2 The project owner shall construct a spill containment structure under the delivery vehicle off-loading areas for the ammonia storage tank, the sulfuric acid storage tank and the sodium hypochlorite storage tank facility, prior to any delivery of these materials to the project site.

Verification: At least 60 days prior to commencing construction of hazardous materials storage facilities, the project owner shall provide design drawings and specifications for spill containment structures to the CPM for review and approval.

HAZ-3 The project owner shall provide a list of architect and engineering (A & E) firms that will be used to review proposed hazardous materials handling equipment and shall provide documentation of the selection process and criteria used in selecting a firm.

Verification: At least 60 days prior to selection of the A & E firm(s) that will be evaluated to review hazardous material handling equipment, the project owner shall provide a list and documentation of the selection process to the CPM for review and approval.

HAZ-4 The project owner shall identify all operational controls and engineered protective systems critical to the avoidance of potential hazardous materials releases

associated with storage, handling, and operational systems on all equipment involving the use of hazardous materials. The project owner shall also provide a complete description, including: (1) controlled parameters (i.e. temperature, pressure); (2) modes of actuation of critical controls; (3) degree of redundancy on critical sensing and control elements; and (4) how the facility can be operated or shut down safely upon failure of controls.

Verification: At least 30 days prior to the A and E firm(s) conducting any design reviews, the project owner shall submit the above specified information specified to the CPM for review and approval.

HAZ-5 The project owner shall develop a pre-start-up checklist for all critical control and protective safety systems related to equipment involving the use of hazardous materials. The project owner shall also conduct function checks of all critical safety systems.

Verification: At least 60 days prior to delivery of hazardous materials to the facility, the project owner shall provide the pre start-up checklist to the CPM for review and approval. At least 30 days prior to start-up, the project owner shall submit verification of function checks for all items on the prestart-up checklist to the CPM for review and approval.

HAZ- 6 The project owner shall provide a detailed Safety Management Plan (SMP), consistent with the guidance provided in API Recommended Practice 750 (API 1990), Guidelines for Technical Management of Chemical Process Safety (AIChE 1989), and OSHA publication 3132 (OSHA 1993), which includes, but is not limited to: (1) a description of how each element of the SMP applies to the proposed facility; (2) an explicit chain of command (by job title on final organization chart) for each specific objective identified in the plan (for example, under "Accountability", list who will be responsible for the preparation of the specific statement of expectations, objectives and goals by senior management, daily shift logs and reports of abnormal conditions); (3) a description of how corporate management will ensure proper implementation of the SMP and ensure that production and safety are properly balanced; (4) methods that will be used to motivate employees to accomplish safety objectives; and (5) detailed procedures to address the hazards associated with human error during storage and transfer of hazardous materials.

Verification: At least 60 days prior to delivery of any hazardous materials to the facility, the project owner shall provide the detailed Safety Management Plan to the CPM for review and approval.

HAZ- 7 The project owner shall provide an Emergency Response Plan (ERP) for on-site spills which includes qualifications and special training for Plant Managers, Supervisors, Operators, and Auxiliary Operators. The ERP shall also address

evacuation planning for adjacent commercial and residential facilities and include a multi-lingual public information and notification plan to provide information to the community on standard operating procedures involving hazardous materials, timely information about any spill including the identity and amount of spilled material, the impacts, if any, of the spill, and regular briefings to the community on facility operations. This ERP shall also include provisions to assist any hazardous material vendor and the San Francisco Department of Public Health, if requested, on any off-site spill involving a hazardous material enroute to the facility.

Verification: No later than 120 days prior to the receipt of hazardous materials at the facility, the project owner shall submit a draft ERP to the CPM and the Bayview Hunters Point Clean Environment Coalition for review and comment. A public meeting may be held to discuss the draft ERP contents. No later than 60 days prior to the receipt of hazardous materials at the facility, the project owner shall submit a final ERP to the CPM for review and approval.

HAZ-8 The project owner shall submit a Business Plan and a Risk Management and Prevention Plan (RMPP) as required by California Health and Safety Code section 25500 et seq. to the City and County of San Francisco Department of Public Health. A copy of the RMPP shall also be submitted concurrently to the CPM and the Coalition, which shall have the opportunity to comment on the proposal.

Verification: Not later than 120 days after construction begins, the project owner shall submit a Business Plan to the SF Department of Public Health and a copy to the CPM for approval prior to delivery of any hazardous materials to the facility. Within 180 days after construction begins, the project owner shall submit a RMPP to the San Francisco Department of Public Health and a copy to the CPM for approval prior to delivery of any hazardous materials to the facility.

HAZ- 9 The project owner shall install and test a foam vapor suppression system, which includes a foam stabilizer agent capable of ensuring that the foam cover reduces vapor emissions by at least 90 percent for at least three hours after application, at the aqueous ammonia delivery vehicle off-loading area and the storage tank, prior to any delivery of aqueous ammonia to the project site.

Verification: At least 60 days prior to commencing construction of the aqueous ammonia storage and transfer facilities, the project owner shall provide design drawings and specifications for the foam vapor suppression system to the CPM for review and approval.

HAZ-10 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM.

Verification: At least 60 days prior to receipt of any hazardous materials on-site, the project owner shall submit copies of the required transportation route limitation to the CPM for review and approval.

HAZ-11 The natural gas pipeline shall be designed to meet CPUC General Order 112-D and 58 A standards, or any successor standards, and will be designed to meet Class III service. The pipeline will be designed to withstand seismic stresses and will be leak surveyed annually for leakage. The project owner shall incorporate the following safety features into the design and operation of the natural gas pipeline: (1) the pipeline will be designed and constructed to carry natural gas at a pressure of 400 psig, (2) butt welds will be x-rayed and the pipeline will be pressure tested prior to the introduction of natural gas into the line; (3) the pipeline will be surveyed for leakage annually according to the "Periodic Leak Surveys of Gas Transmission and Distribution Facilities" document provided during the certification proceeding; (4) the pipeline will be marked to prevent rupture by heavy equipment excavating in the area; and (5) valves will be installed to isolate the line if a leak occurs.

Verification: Prior to the introduction of natural gas into the pipeline, the project owner shall submit design and operation specifications to the CPM for review and approval.

HAZ-12 The project owner shall provide a plan which details procedures that will ensure the safe removal and disposal of any on-site hazardous materials upon closure of the facility. This plan shall also describe measures and resources to ensure that all hazardous materials are safely removed and disposed of properly in the event of an involuntary closure of the facility.

Verification: At least 60 days prior to the delivery of hazardous materials to the facility, the project owner shall provide to the CPM for approval a plan that details procedures and resources to ensure safe removal of all hazardous materials upon any closure of the facility for a period of thirty days or more.

HAZ-13 The project owner shall ensure that no combustible or flammable material is stored, used, or transported within 100 feet of the sulfuric acid tank.

Verification: At least 60 days prior to receipt of sulfuric acid on-site, the project owner shall provide copies of the facility design drawings to the CPM showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any combustible or flammable material and the route by which such materials will be transported through the facility.

HAZ-14 No later than 60 days after the start of operation the project owner shall coordinate with the San Francisco Fire Department for the implementation of Neighborhood Emergency Response Team (NERT) training.

Verification: No later than 60 days after the start of operation the project owner shall submit a letter to the CPM which provides a summary of the project owner's NERT program. The project owner shall include in the letter the NERT coordinator's name and the number of plant personnel that will participate in the training. In the annual compliance report, the project owner shall indicate the level of continuing plant personnel participation in the NERT training program.

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CULTURAL RESOURCES

Within the bounds of this topic, the Commission examines prehistoric and historic archaeological resources, as well as ethnographic resources. Prehistoric archaeological resources are those materials relating to prehistoric human occupation of the project area; they may include deposits, sites, structures, artifacts, trails, and other traces of prehistoric human behavior. In California the prehistoric period began over 10,000 years ago and extended through the 18th century when the first Euro-American explorers entered California.

Historic resources are those materials usually associated with Euro-American contact with native peoples, through the exploration and settlement of an area and the beginning of a written historical record. Historic resources may include archaeological deposits, sites, structures, travelled ways, artifacts, documents, or other traces of human activity which are greater than 50 years old. Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group; they may include traditional resource collecting areas, cemeteries, ceremonial sites, shrines, or ethnic structures.

The examination of potential impacts to cultural resources from the proposed project is required by the Siting Regulations of this Commission (Cal. Code Regs. , tit. 20, §§ 1742, 1742.5) and by the California Environmental Quality Act. (Pub. Resources Code, § 2100 et seq.) Impacts to cultural resources may result either directly or indirectly during the pre-construction or construction phases of the project.

1. Setting.

Known archaeological sites in the San Francisco Bay Area date from as far back as 7,000 years ago. Evidence of early peoples includes shell middens (mounds) such as those located at Candlestick Cove, southwest of the project site. However, prehistoric glacial melting has significantly raised water levels since the first human settlements. Thus, archaeological evidence of the earliest human occupation along the California coast may be located out from the modern-

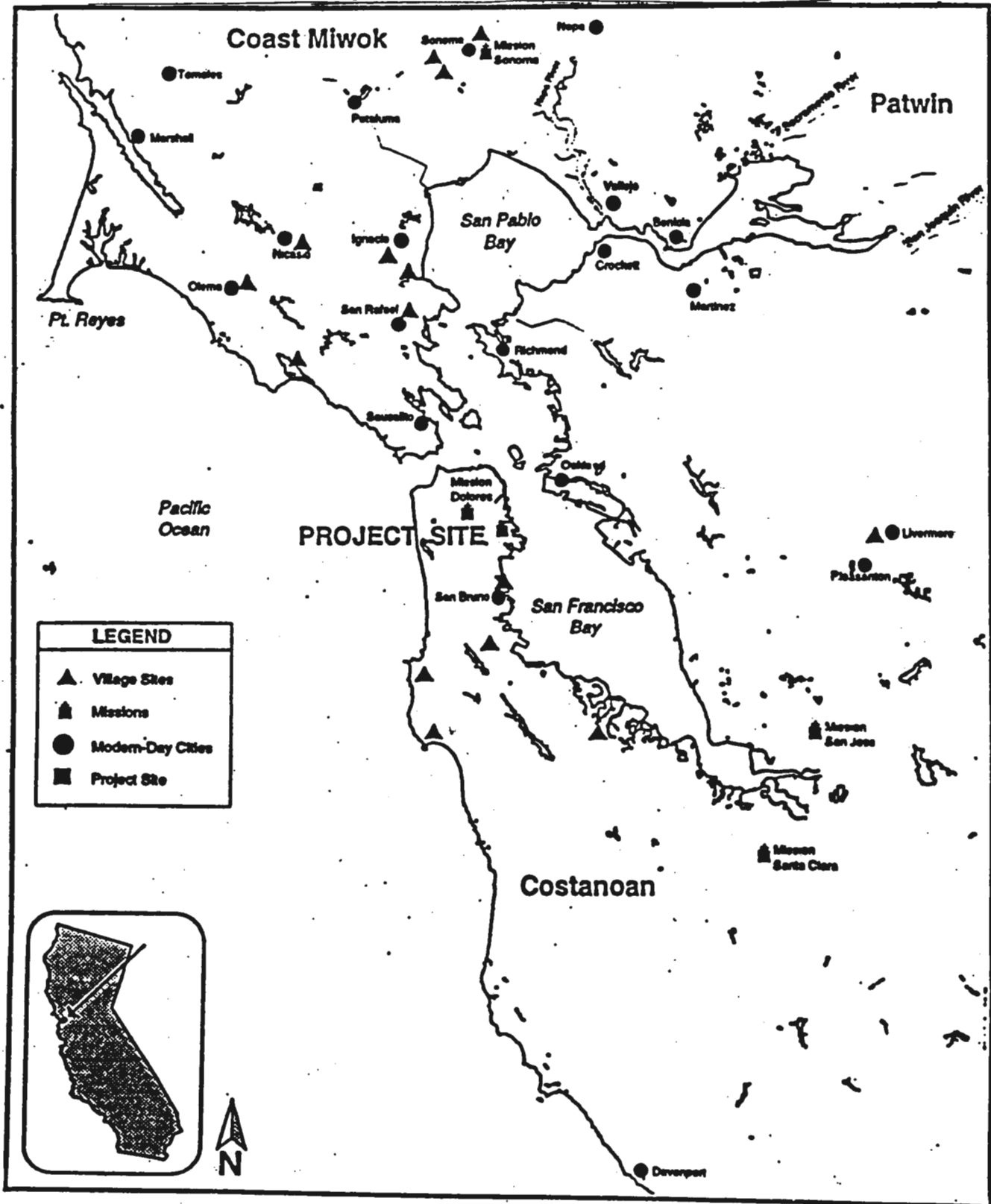
day shoreline and could be buried under more than ten meters of sediment. (AFC, Vol. I, p. 5.3-23.)

Past inhabitants of the project area could include members of the Costanoan tribe, described in 18th century accounts as living south of the project site at the "San Bruno" village located in CULTURAL RESOURCES FIGURE 1 which follows. This group was identified by the padres who founded Mission Dolores in 1776. Lands near the project site were part of the pasturage for mission cattle operations and later for those of a Mexican rancho. After the gold rush in 1849, the area continued to supply meat, leather and tallow to ships as well as to local residents. (FSA, p. 757)

The project area remained unsettled and remote from San Francisco until 1867 when construction of the Long Bridge opened up the Hunters Point area. Ship building and iron works developed, as well as a "butchertown" with cattle yards, slaughterhouses, meat packing houses, leather tanning, glue factories and fertilizer manufacturing. Many of these facilities were constructed on pilings over tidelands and were largely destroyed in the fires from the 1906 earthquake.

As early as 1867 boatyards also dotted the shore near Hunters Point. The yards constructed sail boats such as Jack London's "Snark", hay scows, and paddlewheel steamboats. The area later became a graveyard for abandoned wooden-hulled ferries and schooners. Evidence of the butchertown and the boatyards is now buried under Bay Mud and fill material, much of it deposited when the project area was filled during the 1960's. (FSA, p. 759.)

CULTURAL RESOURCES FIGURE 1
Map of Tribal Groups and Village Sites



(Source: FSA, Vol. I, p. 755.)

2. Potential Impacts.

There has been considerable previous use and human activity along the original shorelines in the project area. Thus there is a potential for cultural resource materials to lie within or under the Bay Mud sediments and modern-day fill materials. Boring log data from the geotechnical investigations for the project site shows areas of abundant shells in the sediments below the fill; this could indicate the presence of a prehistoric shell mound and activities by early peoples. In addition, a thick layer in which wood predominates could indicate the presence of historic structures and development.

Where the electric transmission line and the water, wastewater, and natural gas pipelines stay within trenches in existing public streets, no damage to aboveground historic properties is expected to occur. However, the route for these underground facilities will pass through an area which is known to have been occupied by native Californian peoples prior to historic occupation. Thus, excavation and trenching for placement of the underground utilities could encounter significant prehistoric, historic, and/or ethnic resource materials. (FSA, pp. 763-764.)

The proposed route for the steam pipeline also follows existing city streets. The Applicant's research of historic records concludes that there is a low to moderate potential for encountering significant subsurface cultural resources during pipeline construction. (AFC, Pipeline Assessment, p. 4-8.)

3. Summary of Evidence and Proposed Mitigation.

The Commission must determine whether the project can be constructed and operated in a manner which is not likely to damage significant cultural resources.

Project construction is not expected to require excavation or ground disturbance in excess of ten feet in depth. Since test borings show the project site is covered by fill material to a depth of twenty to fifty feet below the ground surface, the risk of disturbing cultural resources

is reduced. To mitigate the impacts of any possible encounters, the Applicant will retain a professional archaeologist to research pertinent records and to assess the nature and extent of prior fill, depth of ground disturbance, location of undisturbed soils, and any signs of the original ground surface(s) in the vicinity of the facility and the proposed transport routes for gas, water, and electricity. The archaeologist will also examine records for site-specific indications of possible prehistoric activity, especially the existence of shell mounds.

This research will form the basis for targeting specific areas of the project and its utility corridors to monitor during trenching and excavation. The information will also be used to create an Archaeological Resource Treatment Plan to guide the treatment of any resources found during construction. In the event that cultural resources are discovered, the archaeological monitor will assess the integrity of the finds and will have authority to halt ground-disturbing activities in the vicinity of the finds if they are judged to merit further scrutiny. If potentially significant materials are discovered, an archaeological team will be retained to further evaluate the finds according to established significance criteria.

Five portions of the project area previously identified as having archaeological sensitivity will be monitored during construction by the qualified archaeologist. These are:

- The portions of Evans Avenue between Phelps and Keith streets, known as "Butchertown"
- Jennings Street, just north of Evans Avenue
- Ingalls Street at Hunters Point Boulevard
- Hunters Point Boulevard from Hudson to Innes Avenue
- Fitch Street, from Innes Avenue to the Innes site

To mitigate any damage to cultural resources along the steam transmission pipeline routes, the Applicant proposes to base the intensity of monitoring on the likelihood of making finds. Thus, where research shows an area to be less likely to hold significant finds, monitoring will be on a spot basis. In other portions of the route where finding cultural resources is more likely, monitoring will be on a full-time basis. (AFC, Pipeline Assessment, pp. 4-9 to 4-10; FSA, p. 770.)

The Commission staff concurs with the Applicant's presentation of unanswered questions outlined in the AFC and its proposed mitigation measures. In addition, Staff recommends that the Archaeological Resource Treatment Plan be prepared by the Applicant and approved by Staff prior to the start of construction. Staff also recommends that the Applicant instruct all workers who operate ground disturbing equipment on how to recognize cultural resources in the field, and provide the workers with a set of procedures for reporting any such resources that may be discovered during project-related ground disturbance. Finally, Staff recommends extending the Applicant's proposed construction monitoring/data recovery program to include monitoring by qualified Native Americans. (FSA, Vol. I, p. 771.)

No other party submitted evidence on this topic.

Commission Discussion

The Commission has determined that the Applicant and the Staff have each analyzed the potential impacts of the project on cultural resources and have together devised a series of Conditions of Certification which will protect and preserve any significant cultural resources which may be found during construction. These Conditions will also ensure that the project will comply with all laws, ordinances, regulations and standards which pertain to cultural resource protection. The evidence of record submitted by the Applicant and Staff establishes that procedures will be followed during project construction which will both avoid and prevent significant adverse impacts to valuable cultural resources.

FINDINGS AND CONCLUSIONS

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

1. There is a potential for cultural resource materials to lie within or under the Bay Mud sediments and modern-day fill materials associated with the project area.
2. Excavation and trenching for placement of the underground utilities could encounter significant prehistoric, historic, and/or ethnic resource materials.
3. There is a low to moderate potential for significant subsurface cultural resources to be encountered during steam pipeline construction.
4. Mitigation measures required within the Conditions of Certification ensure that trenching and excavation activities in sensitive areas will be monitored and that, if encountered, cultural resources will be properly cared for.
5. The project is likely to be constructed and operated in accordance with all applicable laws, ordinances, regulations, and standards identified in APPENDIX: LORS of this Decision pertaining to project impacts on cultural resources.
6. The mitigation measures set forth in the Conditions of Certification below are adequate to reasonably ensure that construction and operation of the project are not likely to result in significant adverse impact on cultural resources if the proposed mitigation measures and the Conditions of Certification set forth below are followed.

CONDITIONS OF CERTIFICATION

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

Protocol: The resume shall include the qualifications of the designated specialist to demonstrate that the following minimum qualifications are met: a graduate degree in archaeology, anthropology, or cultural resources management; at least three years of cultural resources field experience in California; and at least one year's experience leading cultural resource field surveys, cultural resource recovery operations, and cultural resource analyses.

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

After CPM approval, the designated specialist shall be available to prepare the Archaeological Resources Treatment Plan described in Condition of Certification CUL-2, to develop the employee cultural resources awareness training program described in Condition CUL-3, and to implement (as needed) the Archaeological Resources Treatment Plan.

Verification: At least 90 days prior to the start of construction on the project, the project owner shall submit to the CPM for review and written approval the name, resume, telephone number, and indication of availability for the project's designated cultural resources specialist. The CPM shall approve or disapprove of the proposed cultural resources specialist within 15 days of receipt of the submittal.

CUL-2 Prior to the start of construction on the project, the project owner's designated cultural resources specialist shall prepare an Archaeological Resources Treatment Plan that includes research questions that may be answered. The Plan will serve as a guideline for the evaluation and treatment of archaeological resources that may be found or impacted during construction and shall incorporate or reference the measures included in Conditions of Certification CUL-4 through CUL-9.

Verification: At least 60 days prior to the start of construction on the project, the project owner shall submit to the CPM and to the Coalition for review and written approval of the Archaeological Resources Treatment Plan. The CPM shall approve or disapprove of the Plan within 15 days of receipt of the submittal.

CUL-3 Prior to the start of construction on the project, and as needed for new employees during ground disturbing activities, the project owner shall provide instruction to all workers who operate ground disturbing equipment on how to recognize cultural resources in the field and shall provide the workers with a set of procedures for reporting any such resources that may be discovered during project-related ground disturbance.

Verification: At least 60 days prior to the start of construction on the project, the project owner shall present to the CPM for review, comment and written approval, a description of the instruction to be provided to project construction workers and the set of procedures the workers are to follow. The CPM shall approve or disapprove of the employee training program and/or set of procedures within 15 days of receipt of the submittal. The project owner shall provide documentation to the CPM that the instruction and set of procedures have been provided to the workers who operate ground disturbing equipment.

CUL-4

The project owner will have the designated cultural resources specialist available to monitor project-related construction activities; lead and co-ordinate all cultural resource mitigation efforts; collect all pertinent data; note and map all cultural resource materials encountered; and recover all significant and diagnostic cultural resource materials for analysis using the following protocol:

Protocol: The cultural resources monitoring and mitigation measures will include the following elements:

- a. Prior to ground-disturbing activities, the designated cultural resource specialist is to assemble for review all geotechnical reports, well logs, coring logs, (e.g., hazardous material coring test logs), and other pertinent records. The specialist shall assess these logs for evidence indicating the nature and extent of prior fill, depth of previous ground disturbance, location of undisturbed soils, and any signs of original ground surface(s) (organic or "A" Horizon sediments) in the vicinity of the site of the power generation facility and the proposed transmission routes for gas, water, waste water, steam, and electricity.
- b. The designated specialist is to thoroughly check the core logs for any and all indications of prehistoric activity, in particular, records of shell traces or concentrations that may signal the existence of shellmound deposits. If potential cultural deposits are indicated, the logs are to be evaluated for all evidence pertaining to the integrity of the deposits. Such pre-field core log assessments provide a preliminary understanding of stratigraphy in the project vicinity and an indication of which excavations, borings, or sections of trenches are likely to disturb primary soil deposits.
- c. The designated cultural resources specialist shall monitor excavation, trenching and other deep subsurface disturbances, such as boring or augering, in those portions of the project construction areas in which the pre-field core log assessment reveals evidence of primary soils and/or potential prehistoric cultural deposits. The designated specialist shall monitor ground-disturbing activities where insufficient core log documentation exists to indicate whether primary soils are present. The designated specialist shall prepare a stratigraphy map depicting the strata within the trench for the gas, water, steam, and electricity lines.
- d. Those portions of the steam pipeline route identified in the supplement to the AFC as having potential historic and/or ethnic resource sensitivity are to be monitored during construction by the designated cultural resource specialist. The five areas of concern include:

- Those portions of Evans Avenue between Phelps and Keith, known as "Butchertown"
 - Jennings Street, just north of Evans Avenue
 - Ingalls Street at Hunters Point Boulevard
 - Hunters Point Boulevard from Hudson to Innes Avenue
 - Fitch Street, from Innes Avenue to the Innes site
- e. The following monitoring and mitigation measures are for those portions of the transmission routes which may occur in non-fill soils:
- Monitoring for historic resources should take place along 7th Street, between Jessie and Mariposa streets. Spot monitoring of the pipeline route shall be performed by an archaeologist during construction, with full-time monitoring from Mission Street to the termination and in the vicinity of Folsom and 7th streets;
 - Monitoring for historic resources shall take place from 16th to 22nd streets, between Pennsylvania and Tennessee streets. Full-time monitoring shall occur between 16th and 20th streets because of the presence of early maritime businesses and residences in this section of the pipeline corridor. Intermittent monitoring, at the discretion of the archaeologist, is recommended between 20th and 22nd streets;
 - Monitoring for historic resources shall take place along 22nd Street to Army Street. Full-time monitoring shall occur on Indiana Street, between 22nd and 25th streets at the putative location of a former powder magazine and wharf; full-time monitoring shall also occur at Tennessee and 25th streets, the possible location of a wharf connecting the powder magazine to another structure at Illinois and 25th streets. Intermittent monitoring is recommended, at the discretion of the archaeologist, on Pennsylvania, Indiana, and Tennessee streets during construction;
 - Monitoring for historic resources shall take place in the Islais Creek Area. Full-time monitoring shall occur between Mississippi and Pennsylvania streets due to the potential for turn-of-the-century structures. Spot monitoring is recommended, at the discretion of the archaeologist, along the remaining portions of the route with

special emphasis on the former creek and marsh area due to the possibility of buried boats;

- No monitoring is recommended for prehistoric cultural resources.
- f. If additional monitoring of project construction activities is deemed necessary, the designated cultural resources specialist will determine the areas where monitoring is needed, the level of monitoring needed, and a schedule for when the monitor is to be present. If the likelihood of encountering cultural resources is slight, monitoring can be discontinued in that locality;
- g. The designated cultural resources specialist shall have the authority to halt or redirect construction at any time necessary to protect known or previously unknown cultural resources and their locational context. The halting or redirection of construction shall remain in effect until the designated cultural resources specialist has met with the project owner's construction managers to determine how the resources will be protected if construction resumes, and how the mitigation measures will be implemented for recovery of cultural materials;
- If cultural resources materials are encountered during construction activities, work in the immediate vicinity of the find shall be halted until the designated cultural resources specialist can determine the significance and sensitivity of the find. The designated resource specialist shall act in accordance with the following procedures:
 - The project owner, or its designated representative, shall inform the CPM within one working day of the discovery of any potentially significant cultural resources and discuss the specific measure(s) proposed to mitigate potential impacts to these resources.
 - The designated cultural resources specialist, representatives of the project owner, and the CPM shall meet within five working days of the notification of the CPM, if necessary, to discuss the disposition of any finds and any mitigation measures already implemented or to be implemented.
 - All necessary and required data recovery and mitigation shall be completed within ten days after discovery of the previously unknown cultural resources. If additional time is needed to complete cultural resource mitigation activities, the designated

specialist and the project owner shall meet with the CPM to discuss changes to the mitigation period.

- h. All significant or diagnostic cultural resources will be collected for further analysis; other (less than significant) cultural resources will be noted. All cultural materials found shall be mapped and all recovered cultural resource materials shall be inventoried, evaluated, and removed for analysis and delivery for curation in the retrievable storage collection in a public repository or museum which meets US Secretary of Interior standards for the curation of cultural resources;
- i. The CPM shall have unrestricted access to and open communication with the designated cultural resource specialist(s) at any time during project construction.

Verification: Prior to the start of construction on the project, the project owner shall notify the CPM in writing that the designated cultural resources specialist is available and prepared to implement any monitoring and mitigation measures necessary to minimize potential impacts to cultural resources, as described in the Archaeological Resource Treatment Plan.

CUL-5 The project owner will have a designated Native American observer available to monitor construction activities at the project site (if needed). The designated cultural resources specialist will lead and co-ordinate monitoring efforts by the Native American observer.

Protocol: In any areas determined by local Native American representatives to be sensitive, the project owner will arrange to have a Native American observer present during project construction activities.

The project owner will select the designated Native American observer from the county referral list provided by the Native American Heritage Commission (NAHC), or will solicit the approval of the NAHC and local tribal representatives if the selected observer is not on the list.

The project owner will provide the CPM and the designated cultural resources specialist with the name and telephone number of the Native American observer at least 30 days prior to the start of any ground disturbance and construction activities.

The designated Native American observer will be on-site to monitor site preparation and construction activities within 250 feet of any site of Native American concern.

If additional Native American monitoring of project construction activities is deemed necessary, the designated cultural resources specialist will determine the areas where Native American monitoring is needed and establish a schedule for the monitor to be present. If the likelihood of encountering Native American resources is slight, monitoring can be discontinued at that location, at the discretion of the designated cultural resources specialist.

Verification: Not later than 30 days before construction begins, the project owner will provide the CPM and the designated cultural resources specialist with the name and telephone number of the designated Native American observer(s).

CUL-6 The project owner shall ensure the recovery, preparation for analysis, analysis and delivery for curation of all significant cultural resource materials and data encountered and collected during data recovery and mitigation activities at the project site. The analysis of recovered cultural resource materials and data will be conducted by the designated cultural resources specialist.

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

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the university(ies), research center(s), museum(s), or other appropriate research specialists which will ensure the recovery, preparation for analysis, analysis, and delivery for curation of cultural resource materials collected during data recovery and mitigation for the project. The project owner shall keep these files available for inspection by the CPM for a period of two years.

CUL-7 The project owner shall ensure preparation of a preliminary cultural resources report by the designated cultural resources specialist if significant cultural resources are found. The project owner shall submit the preliminary report to the CPM for review, comment, and approval within 90 days following completion of the data recovery and site mitigation work.

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; 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 from the project; and an estimate of the time needed to complete the analysis of recovered cultural materials and prepare a final report.

Verification: The project owner shall submit a copy of the preliminary cultural resources report to the CPM for review, comment, and approval within 90 days following completion of the data recovery and site mitigation work by the designated cultural resources specialist for the project.

CUL-8 The project owner shall ensure preparation of a final cultural resources report by the designated cultural resources specialist if significant cultural resources are found. The project owner shall submit the final report to the CPM for review, comment, and approval within 90 days following completion of the analysis of the recovered cultural materials and related information.

Protocol: The final 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 sensitivity and significance; data recovery and other mitigation activities; results and findings of any special analyses conducted on recovered cultural resource materials and data; and research questions answered or raised by the data from the project.

Verification: The project owner shall submit a copy of the final cultural resources report to the CPM for review and approval within 90 days following completion of the analysis of the recovered cultural materials and related documentation.

CUL-9 The project owner shall submit an original or an original-quality copy of any CPM-approved final cultural resources report to the appropriate regional archaeological information center(s), the repository receiving any recovered materials for curation, and shall also provide one original-quality copy of the final report to the CPM.

Protocol: The report(s) sent to the regional information center(s) shall include the following (as applicable to the 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 cultural resource materials found during surveys, data recovery, or site mitigation; and photographs (including a set of negatives, if possible) of significant cultural resource materials found and evaluated during the project.

Verification: The project owner shall maintain in its compliance files, copies of all documentation associated with the filing of any approved final cultural resources report and original-quality supporting documentation for any cultural resources that were found and evaluated during project construction.

PALEONTOLOGIC RESOURCES

Paleontology is the systematic study of early life on Earth. It includes the study of fossilized evidence of prehistoric plants or animals preserved in soil or rock. Fossils are scientifically important because they can be used to document the evolution of particular groups of organisms and to understand geologic processes and trends of life over time. Fossils can also be used to date the rocks in which they are found.

The Commission's analysis: 1) identifies potential project impacts to paleontologic resources; 2) reviews the proposed mitigation measures; and 3) determines whether implementation of the mitigation measures will ensure that the project complies with applicable laws, ordinances, regulations, and standards intended to protect paleontologic resources.

1. Setting.

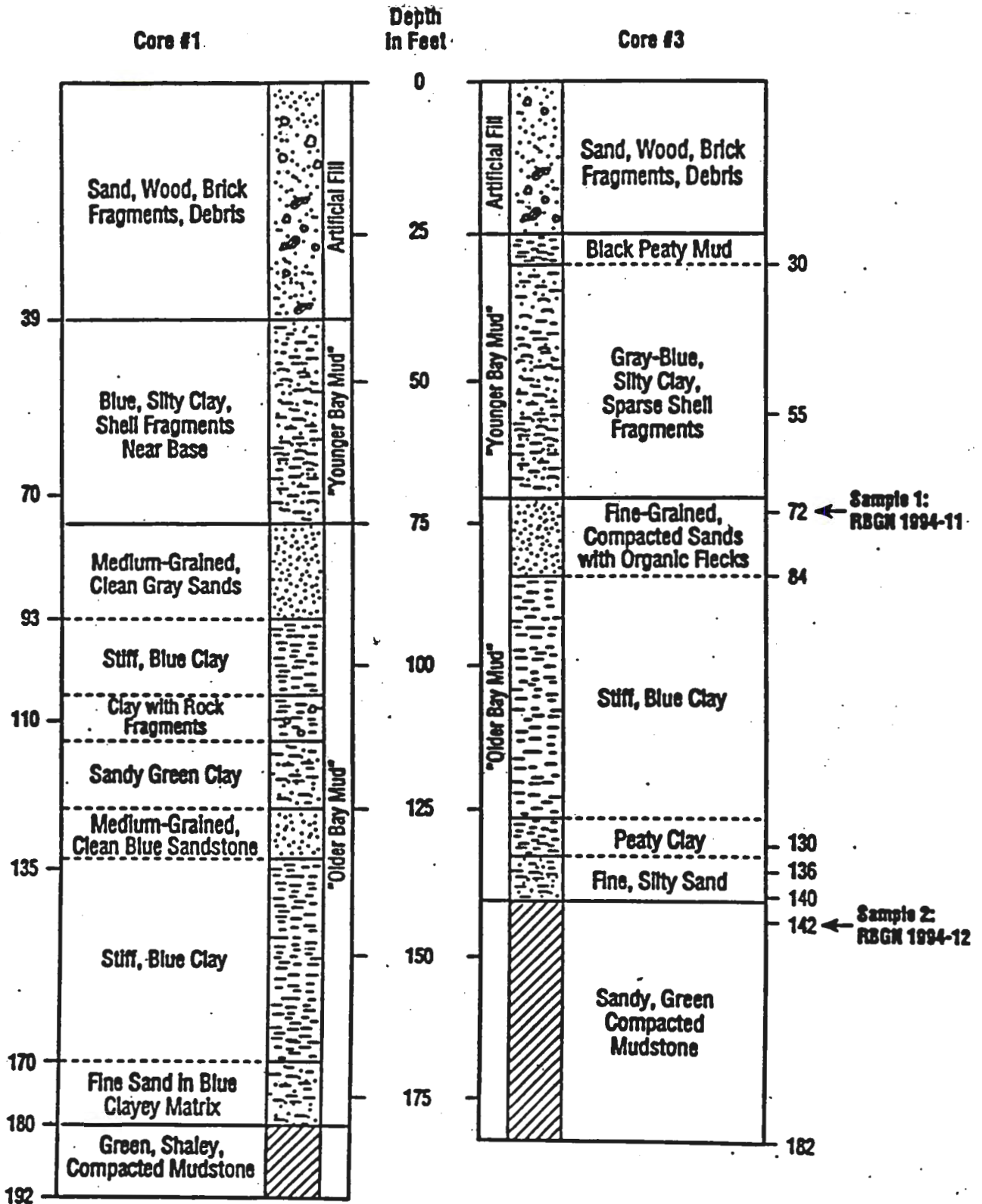
The presence in the San Francisco Bay Area of weathered hills, valleys with flowing streams, and coastal estuaries and bays indicates the potential for the presence of paleontologic resources. Fossils can be produced in sedimentary deposits created by geologic and tectonic earth movement and by the various surface erosional processes. A wide variety of paleontologic resources have been found in the Bay Area.

On the San Francisco Peninsula, the bedrock of the Franciscan Complex may be as thick as 10,000 feet in some places, dating back to the Cretaceous Age (65 to 144 million years ago). Overlying this bedrock are sedimentary layers of Bay Mud, stream deposits and recent alluvium, sand, and surface fill. In the project area the combined thickness of these sedimentary layers may be as much as 225 feet. Generally, the depositional sequence of the sediments throughout the Bay Area is similar, although the component deposits may lie at varying depths below the surface depending upon movement in the underlying rock formations. (FSA, Vol. I, p. 787.) Composite columns from core samples taken at the project site are shown in PALEOLOGICAL RESOURCES TABLE 1.

PALEOLOGICAL RESOURCES TABLE 1

Idealized,¹ Composite Columns from Core
Samples Taken at the Project Site

(Source: AFC, Table 5.3-3.)



¹ The term "idealized" means that the table shows the predominant features of the core samples without including all minor details.

2. Potential Impacts.

The project site is located entirely on artificial fill and except for construction of support pilings, project impacts to adjacent or underlying fossiliferous strata is unlikely. Such strata include Franciscan Complex, Bay Mud, Colma Formation, and undifferentiated Pleistocene/Holocene sediments. The Franciscan bedrock which underlies the project is characterized in the AFC as having low paleontologic sensitivity. (AFC, p. 5.3-19.) While this formation has produced fossil specimens, the depth to bedrock beneath the project site is so great that it is unlikely to be affected by construction unless there is a need for large-scale excavation to secure capable soils for project foundations. (FSA, Vol. I, p. 790.)

3. Summary of the Evidence and Proposed Mitigation.

The Commission examined the issue of whether the project is likely to impact paleontological resources and, if so, whether such impacts can be mitigated to an insignificant level.

The Applicant stated in the AFC that the project is not expected to require excavation or ground disturbance in excess of ten feet in depth. Geotechnical reports and borings contained in the record demonstrate that the project site is covered by fill material that extends to a depth of twenty to fifty feet below the ground surface of the proposed project site. Thus, paleontological resources would not likely be encountered during excavation. However, if project construction were to require large scale deep testing or excavation, then Applicant proposes that a qualified paleontologist be present to identify and salvage any fossil remains. (AFC, Vol. I, p. 5.3-19.)

The routes of the electric transmission line and the water, wastewater, and natural gas pipelines follow existing paved roadways where no surface evidence of fossil materials was observed during pre-project evaluations. Along these routes the depth to the underlying Bay

Muds, the Colma Formation, or to the non-serpentine Franciscan Complex is unknown so the potential for impacts cannot be evaluated until the ground is opened for trenching. (*Id.*)

To mitigate any impacts during transmission line construction the Applicant proposes that if bedrock or Pleistocene/Quaternary deposits are exposed during trenching, then a paleontologist would monitor the excavation. This individual would also conduct limited testing for microvertebrate fossils by taking bulk samples for off-site analysis. If existing utility easements are used for feeder services to the facility, Applicant believes that no further paleontologic resource mitigation is necessary. (*Id.*)

Commission staff concurs with the contingency mitigation measures proposed by the Applicant and recommends adding additional measures to include recovery, analysis, identification, and curation of any fossil materials which may be encountered during project construction. (FSA, p. 795.)

No other party testified on this topic.

4. Commission Discussion

The Commission has reviewed in detail the several analyses of potential project impacts to paleontological resources as well as the respective mitigation recommendations of the Applicant and Commission staff. These uncontroverted submittals support the determination that by utilizing the mitigation recommendations of both the Staff and Applicant, the project and its related facilities can be constructed and operated without imposing a significant impact upon paleontological resources. (*Id.*)

The Commission is furthermore convinced that the project can be constructed and operated in compliance with all laws, ordinances, regulations and standards which apply to paleontological resources.

FINDINGS AND CONCLUSIONS

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

1. The project will be constructed primarily on artificial fill and Bay Mud which overlay bedrock of the Franciscan Complex.
2. Paleontologic resources would most likely be found in the bedrock underlying the project site.
3. No large scale project-related excavations are expected to reach bedrock formations containing paleontologic resources.
4. The evidence of record indicates that the Franciscan complex has relatively low overall sensitivity for paleontologic resources.
5. The project is likely to be constructed and operated in accordance with all applicable laws, ordinances, regulations and standards identified in APPENDIX: LORS of this Decision pertaining to project impacts on paleontologic resources.
6. The mitigation measures set forth in the Conditions of Certification below are adequate to reasonably ensure that construction and operation of the project are not likely to result in significant adverse impacts on paleontologic resources.

CONDITIONS OF CERTIFICATION

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

Protocol: The resume shall include the qualifications of the designated paleontologic resource specialist to demonstrate that the following minimum qualifications are met: a graduate degree in geology or paleontology; at least three years of paleontologic field experience in California; and at least one year's

experience leading paleontologic resource field surveys, fossil recovery operations, preparation, and analyses.

The CPM will review the qualifications of, and must approve in writing, the project owner's designated paleontologic resources specialist prior to the start of construction on the project. After CPM approval, the paleontologic specialist shall be available to prepare the monitoring and mitigation plan described below. The designated specialist shall also be available to prepare the pre-construction employee awareness training program, and provide monitoring and mitigation, as needed in sensitive resource areas, during construction activities associated with all aspects of the project.

Verification: At least 90 days prior to the start of construction on the project, the project owner shall submit to the CPM for review and written approval, the name, resume, telephone number, and indication of availability for its designated paleontologic resources specialist. The CPM shall approve or disapprove of the proposed paleontologic resources specialist within 15 days of receipt of the submittal.

PAL-2 Prior to the start of construction on the project, the project owner and the designated paleontologic resource specialist shall instruct all workers who operate ground disturbing equipment on how to recognize paleontologic resources in the field and shall provide the workers with a set of procedures for reporting any such resources that may be discovered during project-related ground disturbance.

Verification: At least 60 days prior to the start of construction on the project, the project owner shall submit to the CPM for review, comment, and written approval, a description of the instruction to be provided to project construction workers and the set of procedures the workers are to follow. The CPM shall approve or disapprove of the employee training plan and/or set of procedures within 15 days of receipt of the submittal. The project owner shall provide documentation to the CPM that the awareness training and set of procedures have been provided to the workers who operate ground disturbing equipment.

PAL-3 Prior to the start of construction, the designated paleontologic resources specialist shall prepare to implement, as needed during construction, the following monitoring and mitigation measures to minimize potential impacts to paleontologic resources.

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

- a. Where monitoring of project construction activities is deemed necessary by the designated paleontologic specialist, the specialist will determine the

areas where monitoring is needed and establish a schedule for the monitor to be present. If the likelihood of encountering fossil resources is slight, monitoring will be discontinued in that locality;

- b. The following mitigation measures apply to those portions of the transmission line and pipeline routes which may occur in non-fill soils:
- If undisturbed bedrock or Pleistocene/Quaternary surficial deposits are exposed during excavation and trenching, the designated paleontologist is to be available to monitor excavation;
 - If bedrock is exposed during excavation, the construction area is to be spot-checked by the designated paleontologist. The relative low sensitivity of the bedrock formation suggests that, overall, a total of several hours of monitoring in these portions of the route is probably sufficient;
 - If Pleistocene/Quaternary surficial deposits are exposed during excavation, then the ongoing trenching activities are to be monitored by the designated paleontologist at least 50 percent of the time;
 - The designated paleontologic resource specialist is to also implement limited testing for micro-vertebrate fossil materials by obtaining bulk sediment samples for off-site reduction (using wet screening techniques) and subsequent laboratory analysis; and
 - If existing utility trenches are used for any feeder services to the San Francisco Energy facility, then no further paleontologic resource mitigation may be necessary, at the discretion of the designated paleontologic resources specialist.
- c. The designated paleontologic resources specialist shall have the authority to halt or redirect construction at any time necessary to protect known or previously unknown paleontologic resources and their locational context. The halting or redirection of construction shall remain in effect until the designated paleontologic resources specialist has met with the project owner's construction managers to determine: 1) how the resources will be protected if construction resumes; and 2) how the mitigation measures will be implemented for recovery of fossil materials;
- d. If fossil resources are encountered during construction activities, work in the immediate vicinity of the find shall be halted until the designated paleontologic resources specialist can determine the significance and

sensitivity of the find. The designated paleontologic specialist shall act in accordance with the following procedures:

The project owner, or its designated representative, shall inform the CPM within one working day of the discovery of any potentially significant paleontologic resources and discuss the specific measure(s) proposed to mitigate potential impacts to these resources. The designated paleontologic resources specialist, representatives of the project owner, and the CPM shall meet within five working days of the notification of the CPM, if necessary, to discuss the disposition of any finds and any mitigation measures already implemented or to be implemented. All necessary and required data recovery and mitigation shall be completed within ten days after discovery of the previously unknown paleontologic resources;

- e. All vertebrate fossil remains will be collected and any invertebrate fossil remains will be sampled. All fossil materials found shall be mapped and all significant fossil materials shall be prepared, identified, and removed for analysis and curation in the retrievable storage collection in a public repository or museum which meets Society of Vertebrate Paleontology (SVP) requirements for the curation of paleontologic resources;
- f. The CPM and staff shall have unrestricted access to and open communication with the designated paleontologic resources specialist(s) at any time;
- g. The designated paleontologic resources specialist will complete the necessary analysis of significant fossil resource materials found during data recovery and mitigation activities for the project;
- h. The designated paleontologic resources specialist shall prepare a draft report summarizing the initial findings and outlining a time schedule for completion of the necessary analysis of significant fossil materials found during mitigation activities for the project;
- i. The designated paleontologic resources specialist will submit to the CPM, for review and approval, a final paleontologic resources report if significant fossil resources are found; and
- j. The designated paleontologic resources specialist will ensure that original and/or original-quality copies of the final paleontologic resources report is filed with the appropriate museums, paleontologic information repository(ies), and CPM.

Verification: At least 60 days prior to the start of construction on the project, the project owner shall confirm that the designated paleontologic resources specialist is prepared to implement monitoring and mitigation measures for paleontologic resources, as described in Condition PAL-3.

PAL-4 In the monthly Compliance Report, the project owner shall provide the CPM with a summary of the progress or status of the paleontologic resources monitoring and/or mitigation work being conducted for the project. These progress or status summaries shall be prepared by the designated paleontologic resources specialist.

Verification: Paleontologic resources monitoring and/or mitigation progress or status summaries shall be provided to the CPM in the monthly Compliance Report.

PAL-5 The project owner shall ensure the recovery, preparation for analysis, and analysis of all collected significant paleontologic resources materials encountered during data recovery and mitigation activities related to the San Francisco Energy Company 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 paleontologic resources materials collected during data recovery and mitigation for the project. The project owner shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a preliminary paleontologic resources report by the designated paleontologic resources specialist if significant fossil resources are found. The project owner shall submit the preliminary report to the CPM for review, comment, and approval within 90 days following completion of the data recovery and site mitigation work.

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; possible results and findings of any analysis to be conducted on recovered paleontologic resources materials and data; proposed research questions which may be answered or raised by the data from the project; and, an estimate of the time needed to complete the analysis of recovered fossil materials and prepare a final report.

Verification: A copy of the preliminary paleontologic resources report shall be submitted to the CPM for review, comment, and approval within 90 days following completion of the data

recovery and site mitigation work by the designated paleontologic resources specialist for the project.

PAL-7 The project owner shall ensure preparation of a final paleontologic resources report by the designated paleontologic resources specialist if significant fossil resources are found. The project owner shall submit the final report to the CPM for review, comment, and approval within 90 days following completion of the analysis of the recovered fossil materials and related information.

Protocol: The final report shall include (but not be limited to): the survey report(s), methodology, and recommendations; site records and maps; determinations of sensitivity and significance; data recovery and other mitigation activities; results and findings of any special analyses conducted on recovered paleontologic resource materials and data; and research questions answered or raised by the data from the project.

Verification: A copy of the final paleontologic resources report shall be prepared by the designated paleontologic resources specialist for the project and submitted to the CPM for review, comment, and approval if significant paleontologic resources are found. The final report shall be submitted to the CPM within 90 days following completion of the analysis of the recovered fossil materials and related information.

PAL-8 The project owner shall submit an original or an original-quality copy of the approved final paleontologic resources report to the appropriate paleontologic information repository(ies) and one copy of the original to the CPM.

Protocol: The report copy sent to the information repository(ies) shall include the following (as applicable to 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 paleontologic resource materials found during surveys, data recovery, or site mitigation; and photographs (including a set of negatives, if possible) of significant paleontologic resource materials found and evaluated during the project.

Verification: The project owner shall maintain in its compliance files copies of all documentation related to the filing of the original materials and final paleontologic resources report with the appropriate paleontologic information repository(ies), if significant paleontologic resources are found.

PAL-9 The project owner shall deliver for curation all significant paleontologic resources materials collected during data recovery and mitigation for the project. The

materials shall be delivered for curation in a public repository which meets Society for Vertebrate Paleontology (SVP) requirements for the curation of paleontologic resources.

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 public repository(ies) with which it has provided for delivery for curation of the paleontologic resources materials collected during data recovery and site mitigation for the project.

SOIL AND WATER RESOURCES/SITE REMEDIATION

The Commission must determine whether the project complies with all applicable laws, ordinances, regulations, and standards related to soil and water resources. This analysis reviews the potential impacts to soil and water resources to establish:

- whether the project will affect the availability of the city's water supplies;
- whether the completed facilities will be vulnerable to flooding;
- whether project construction or operation will lead to accelerated wind or water erosion and sedimentation; and
- whether project construction or operation will lead to degradation of surface or groundwater quality.

This section also reviews whether the proposed site remediation process will adequately mitigate potential impacts to public health and the environment due to inadvertent migration or seepage of contaminated soil or groundwater that may be disturbed by project activities at the site.

1. Setting.

Existing topography at the previously undeveloped site is fairly level with some low mounds and depressions created by rock, soil, and other debris dumped on the site over many years. Elevations range from 5 to 25 feet above sea level with most of the site above 18 feet. Existing, unlined drainage swales are found near the northern and western boundaries of the site. In general, runoff flows to the north and west and drains into storm drain inlets off-site. The site is predominantly covered by native and non-native brush and wild grasses.¹³² (AFC, p. 5.13-3; FSA, Vol. I, p. 45.) Contaminated soils from construction debris and other industrial

¹³² Since the location does not support productive farmland, construction of the project will not displace or curtail agricultural land uses. (AFC, p. 5.9-2.)

waste are found in the existing landfill on-site and will be handled in accordance with the site remediation plan discussed below. (FSA, Vol. I, p. 62.)

San Francisco Bay is the only significant surface water feature within the area. Water quality in the Bay has been severely impacted by pollutants associated with urban development since waterfront areas were used for industrial activities and waste disposal. Stormwater runoff from industrial areas is a major source of metals and other toxics found in sediments and marine organisms in the Bay and its tributaries such as Islais Creek, which is about 700 feet north of the site. The Islais Creek area has been identified as a potential toxic "hot spot" by the State Water Resources Control Board (SWRCB).¹³³ (AFC, p. 5.13-2; 7/20/95 RT 277:17-25.) The site is located within the Islais Valley Groundwater Basin.¹³⁴ (FSA, Vol. I, pp. 43-44.)

Wastewater treatment in the site vicinity is provided by the Southeast Water Pollution Control Plant (WPCP) which treats approximately 65 million gallons per day. Peak capacity for secondary treatment is approximately 150 million gallons per day. The sewer system served by the WPCP also collects stormwater runoff. The system will be expanded not because of this project, but to allow treatment of up to 100 million gallons per day of stormwater runoff from the existing urban/industrial environment. System storage capacity is also being expanded. (FSA, Vol. I, p. 44; 7/13/95 RT 176.)

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¹³³ Toxic hot spots are areas where pollutant concentrations are sufficient to threaten public health or wildlife. (Cal. Water Code §13391.5[e].) Contaminants found in the Islais Creek area, covering an estimated 10 to 50 acres, are silver, arsenic, chromium, mercury, lead, polynuclear aromatic hydrocarbons and polychlorinated biphenyls. (FSA, Vol. I, p. 43.)

¹³⁴ The basin is open to the Bay and bounded inland, both vertically and horizontally, by bedrock. It is shallow due to the thinness of the unconsolidated sediments, has low water storage capacity, and is highly susceptible to contamination. Since it is hydrologically connected with the Bay, the groundwater quality reflects that of the Bay. The groundwater basin is not used for drinking water. (FSA, Vol. I, pp. 43-44.)

2. Potential Impacts.

The project will not adversely affect the availability of city water supplies because all project water requirements, with the exception of potable water needs,¹³⁵ will be met by use of secondary treated wastewater or effluent from the WPCP. (FSA, Vol. I, p. 51.) Operational discharges will be routed back to the WPCP and will not adversely affect water quality. Mitigation measures will be implemented to identify and provide erosion and stormwater runoff control during construction. (*Id.*, p. 63.) Specific site remediation measures will be implemented to protect public health and the environment from exposure to contaminated soil and groundwater during on-site construction activities. (Staff's 9/12/95 Written Supplemental Site Remediation Testimony as amended 9/14/95.)

3. Summary of Evidence and Proposed Mitigation.

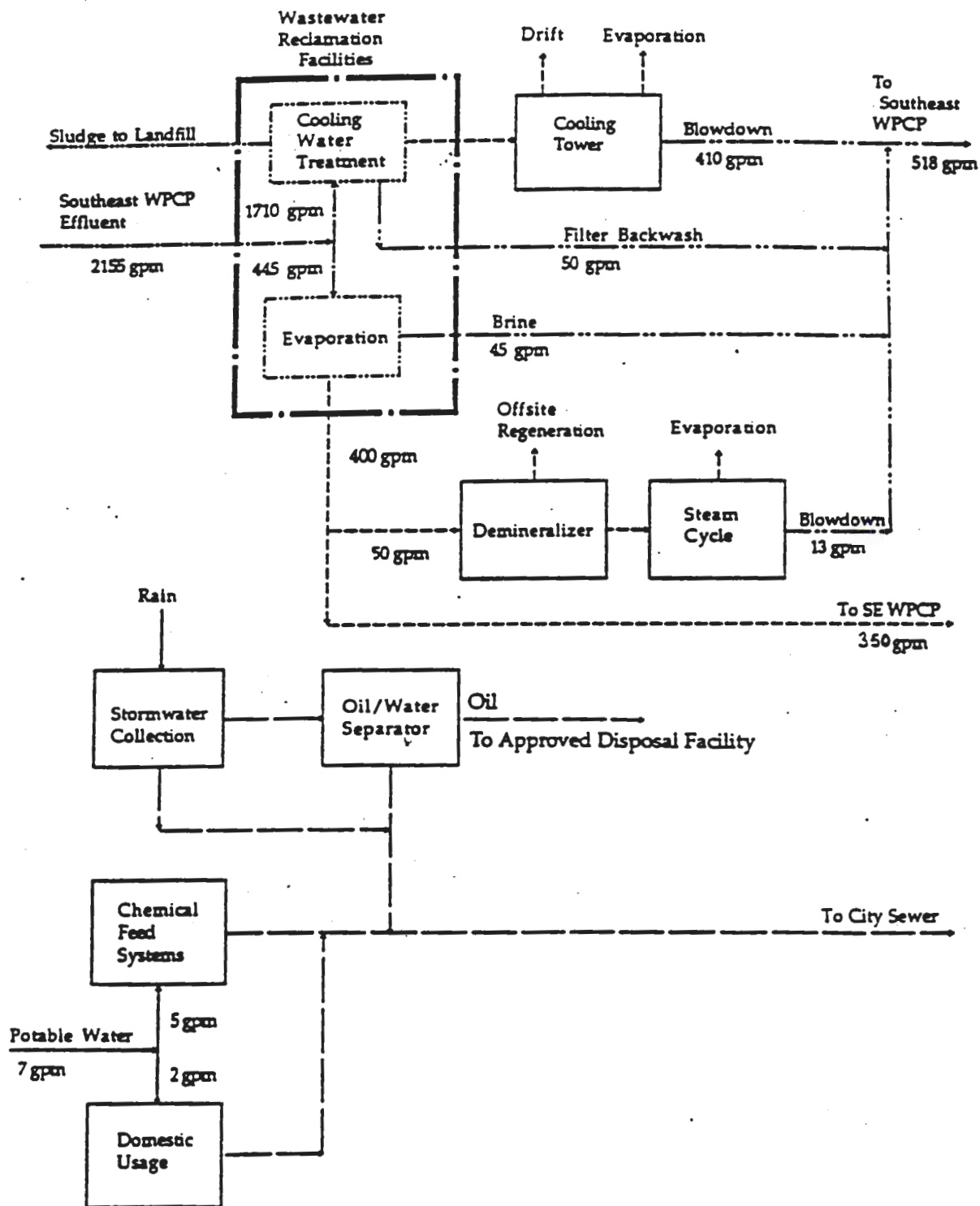
The evidence on soil and water resources was uncontroverted except for concerns raised by the Intervenors regarding site remediation.

A. Water Supply. Effluent will be piped from the WPCP to the site by an underground pipeline. SOIL/WATER FIGURES 1 and 2, respectively, show the peak and average water requirements and flows for the facility. Effluent flows from the WPCP will range from 2.95 to 3.10 million gallons per day.¹³⁶ Roughly 80 percent of this effluent will be diverted for

¹³⁵ San Francisco imports most of its water from the Hetch Hetchy Reservoir System located on the Tuolumne River in the central Sierra Nevada. Average annual delivery capacity is about 325 million gallons per day. (FSA, Vol. I, p. 44.) The project will be connected to the city water supply for its potable water needs estimated to be seven gallons per minute: five gallons for chemical feed and the remaining two gallons for domestic purposes. (*Id.*, p. 52.)

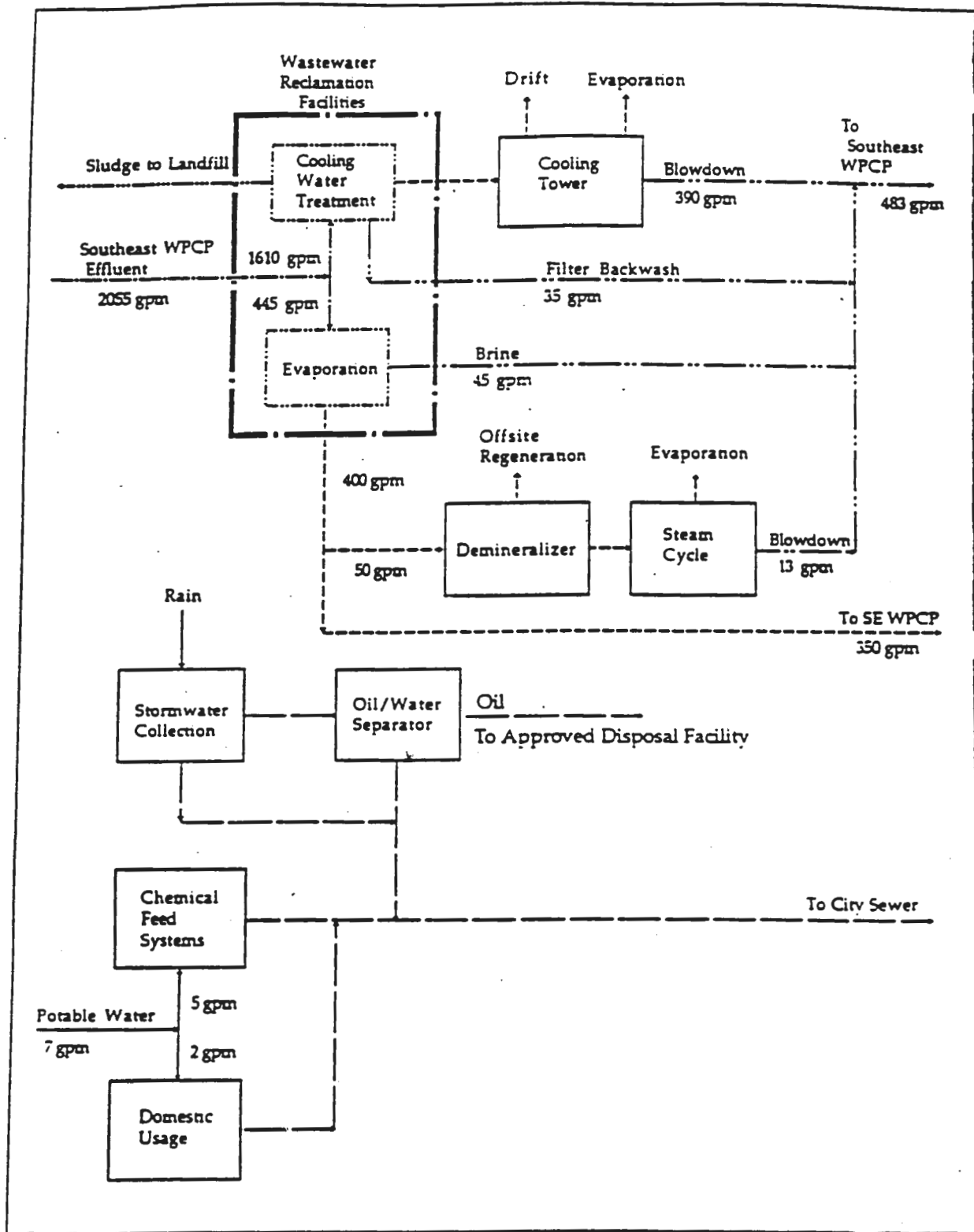
¹³⁶ SFEC expects to use the City's potable water supply as a backup during timed maintenance periods when the WPCP is not operating. It is estimated that approximately 2,000 gallons per minute would be required for 12 hours, 12 times a year (0.89 acre feet of water per year.) Purified water would not be produced during these periods. The city has indicated that the existing water mains have sufficient capacity to meet the project's needs. (FSA, Vol. I, p. 52.)

SOIL/WATER FIGURE 1
Peak Water Requirements and Flows



(Source: FSA, Soil and Water Resources Figure 1.)

SOIL/WATER FIGURE 2
Average Water Requirements and Flows



(Source: FSA, Soil and Water Resources Figure 2.)

treatment and then used for cooling tower makeup water. SOIL/WATER FIGURE 3 shows the reclamation process and flows for this water. (FSA, Vol. I, p. 51.) Solids from the process will be sent to a landfill for disposal while the backwash and cooling tower blowdown will be returned through a dedicated pipeline to the WPCP.¹³⁷ (*Ibid.*)

SFEC will produce purified water from the resulting wastewater stream either through a multiple-effect distillation evaporation process or a reverse osmosis process.¹³⁸ Approximately 250 gallons per minute (0.36 million gallons per day [gpd]) of purified water will be returned to the WPCP using the distillation process; approximately 3,500 gallons per minute (1 million gpd) would be returned using the reverse osmosis system. (FSA, Vol. I, p. 51.)

The draft Effluent Agreement between SFEC and the City and County of San Francisco allows the WPCP to accept up to one million gallons of reclaimed water per day or a minimum of 1,000 acre feet per year.¹³⁹ (Effluent Purification Services Agreement, 4/11/95 Draft, pp. 5-6, [Attachment to FSA, Vol. I, Soil & Water Resources].)

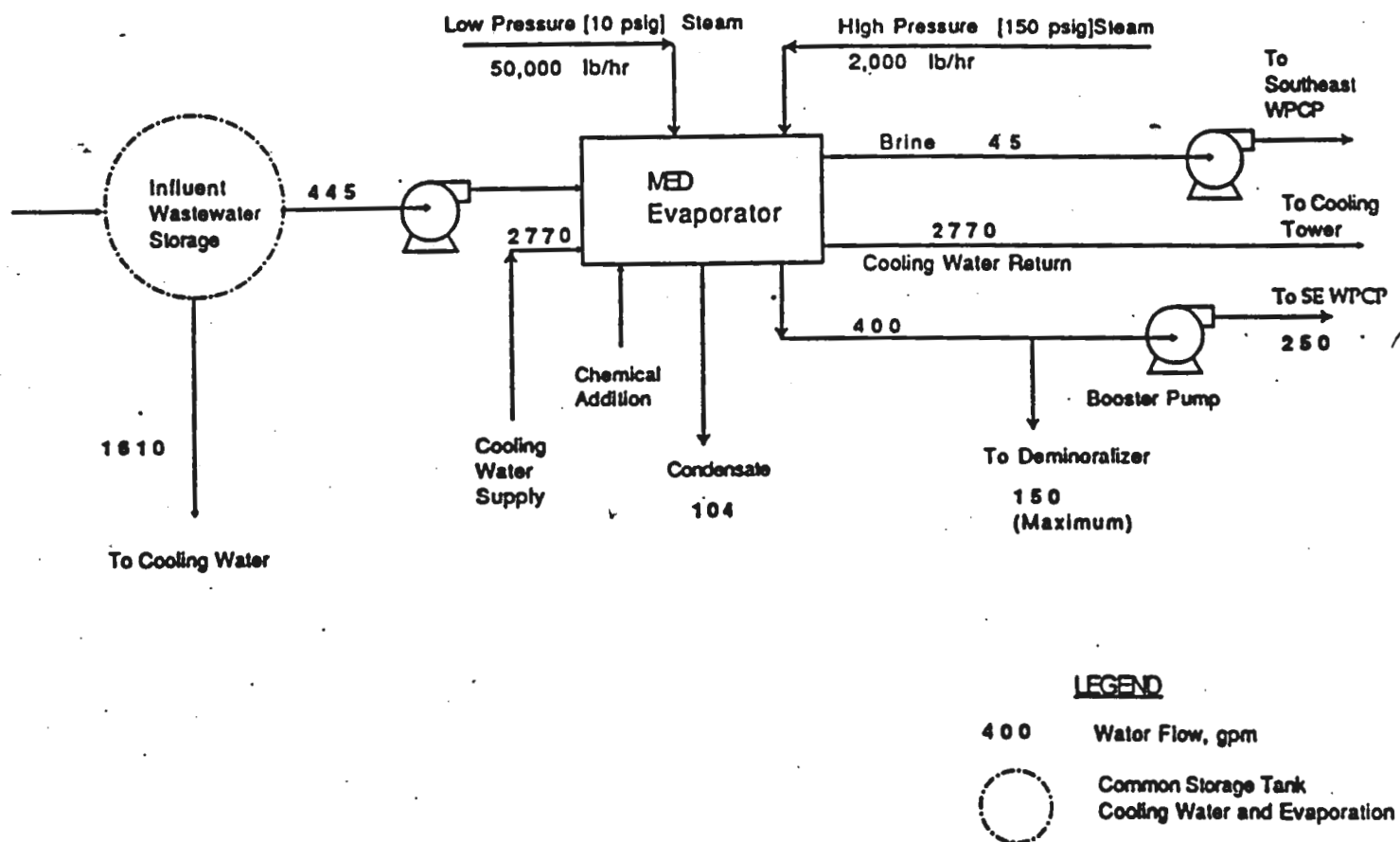
B. Flooding. San Francisco is not listed as a flood plain hazard area under the Federal Emergency Management Agency's (FEMA) jurisdiction since there are no streams or rivers in the site vicinity. (AFC, p. 5.13-4.) However, potential for tidal flooding exists. The U.S. Army Corps of Engineers estimates that the one hundred year tide in the site area is 6.7 feet

¹³⁷ SFEC will obtain an Industrial Discharge Permit to ensure that wastewater discharges from equipment washdown, collected stormwater, and sanitary wastewater streams discharged to the sewer system comply with all applicable standards. (FSA, Vol. I, p. 63.)

¹³⁸ SFEC initially proposed to use a multiple-effect distillation evaporation process to produce purified water. (FSA, Vol. I, p. 52; AFC, p. 3-73.) After SFEC identified San Francisco Thermal as the steam host for the project, an alternative water treatment system using a reverse osmosis unit was proposed. (FSA, Vol. I, p. 52.)

¹³⁹ The draft Effluent Agreement stipulates that reclaimed water delivered to WPCP may not be produced by a steam process or multiple-effect distillation evaporation process. The AFC initially included a water reclamation plant on the site which would have used water treated by the multiple-effect distillation process. Subsequently, SFEC removed the proposed water reclamation plant from the project description. However, SFEC maintained the two alternative water treatment processes in its project description. (FSA, Vol. I, p. 52.)

SOIL/WATER FIGURE 3 **Water Reclamation**



(Source: FSA, Soil and Water Resources Figure 3.)

National Geodetic Vertical Datum (NGVD). The Port site ranges in elevation from 8.4 to 26.7 feet NGVD with the majority of the site in excess of 10 feet NGVD. (FSA, Vol. I, p. 53.) Thus, the danger for total flooding of the site is remote.

SFEC estimated that the likely run-up of an earthquake generated tsunami with a 100 year interval is 5.5 feet NGVD in the Hunters Point area with a maximum elevation of 9.0 feet NGVD. Since the majority of the Port site is over 1,000 feet from the Bay and over 700 feet from the Islais Creek Channel, flood run-up should not be a problem. Furthermore, the site is protected by several major structures between the site and the Bay. (*Ibid.*)

C. Erosion and Sedimentation. Wind and water erosion may be accelerated by construction and operation, leading to sediment deposits off-site and into the Bay. Since soils are contaminated, deposition of this sediment could significantly affect water quality and biological resources within the Bay. Excavation, grading, and earth moving activities during construction remove the vegetative cover and loosen the soil structure, allowing run-off to entrap and remove soil particles. Wind crossing the soil surface, unimpeded by vegetation or structures that reduce wind velocity, can also entrap and remove soil particles creating airborne dust potentially hazardous to public health. (*Id.*, p. 54.)

SFEC will obtain stormwater discharge permits from the SWRCB pursuant to the National Pollutant Discharge Elimination System (NPDES) requirements for construction stormwater discharge and storm drain standards. (AFC, pp. 5.9-2, 5.13-7.) SFEC will also file a Storm Water Pollution Prevention Plan (SWPPP) to identify sources of pollution and to provide for elimination of non-stormwater discharges to the storm drain system.¹⁴⁰ (AFC, pp. 5.13-7, 5.13-8.)

¹⁴⁰ Project construction and operation can lead to groundwater degradation from inadvertent spills and discharges of solvents and oils which could be washed off-site by stormwater drainage into the sewage system or into the Bay. SFEC will develop a Spill Prevention Control and Countermeasures Plan to control run-off contaminated by inadvertent spills from causing off-site impacts. (AFC, p. 5.13-9; FSA, Vol. I, p. 55.)

Measures to limit fugitive dust will include spraying water or chemical dust suppressants on roads and parking lots. Other disturbed areas such as open storage piles will be stabilized by fabric covers, water, or chemical suppressants. (FSA, Vol. I, pp. 63-64.) The site remediation plan establishes methods to handle contaminated soils. Since the majority of the site, except for a small area of landscaping, will be covered with structures or impervious surfaces, the likelihood of erosion is minimal or non-existent. (*Id.*, p. 55.)

D. Site Remediation. SFEC conducted two environmental site assessments (ESA) to determine the presence of contaminated materials from past land use.¹⁴¹ The first phase (Phase I) ESA analysis was based on site reconnaissance and review of available information on past use. The second phase (Phase II) ESA, which was conducted in May and June, 1994, included soil and groundwater sampling to identify possible contaminants. (7/20/95 RT 201-202; FSA, Vol. I, p. 46.) An additional "Soil Boring and Sampling Report" was submitted in July, 1995 by geologist Dwight R. Hoenig who presented testimony on behalf of SFEC. (7/20/95 RT 226.)

Contaminated Soil. The Phase II ESA generally reflected the results of previous soil sampling at Pier 94. (FSA, Vol. I, p. 49; 7/20/95 RT 256-257.) Soil samples from six borings, ranging in depth from about 139 to 194 feet, were analyzed for volatile and semivolatile organics, chlorinated pesticides and herbicides, polychlorinated biphenyls, metals, diesel, and

¹⁴¹ In 1989, the Port conducted soil and groundwater testing at Pier 94 in preparation for the closure of the solid waste disposal facility adjacent to the site. Soil sampling showed the presence of volatile and semivolatile compounds and elevated concentrations of metals. The contaminants were found in the fill material at depths ranging from five to forty feet over the entire site and appeared to be distributed randomly. (FSA, Vol. I, p. 47.)

The investigation also tested groundwater samples from monitoring wells on Pier 94 which detected elevated concentrations of mercury and lead. Most of the contaminants identified in the soil, however, did not appear to migrate into groundwater, which is found less than ten feet under the Pier area. Therefore, it is unknown whether groundwater contamination at Pier 94 was due to fill material at the site or to migration of contaminants from other locations. Recent groundwater monitoring by the Port indicates that although mercury and lead levels have declined, barium and iron levels remain elevated above drinking water standards. (*Ibid.*) It must be noted, however, that this groundwater is *not* used as a source of local drinking water.

gasoline.¹⁴² Selected soil samples were also tested for cyanide, sulfide, fluoride, flammability, asbestos and heavy metals.¹⁴³ (FSA, Vol. I, pp. 46-48.)

Chemicals were found at apparently random locations within the fill material, showing no clear concentration trends with depth. Soil sample locations in relationship to groundwater depth also did not seem to influence the distribution of chemicals at the site. High concentrations of metals and organic chemicals were found in samples collected both above and below the water table. (FSA, Vol. I, p. 49.)

Groundwater. Groundwater samples were taken at three boreholes at different locations from the soil sampling boreholes. The depth of each borehole was determined by groundwater level. All groundwater samples were analyzed for volatile and semivolatile organics, chlorinated pesticides and herbicides, polychlorinated biphenyls, metals, diesel, and gasoline. (FSA, Vol. I, p. 49.)

¹⁴² Volatile organics were not detected in any of the soil samples. Five semivolatile organics were detected in samples from three of the borings. Relatively low concentrations of pesticides were found in samples from each of the six borings. Most samples containing pesticides were collected from above the water table. (FSA, Vol. I, p. 48.)

Polychlorinated biphenyls were detected in locations above the water table in five of the six boreholes at concentrations well below the Federal Toxic Substance Control Act limit for hazardous levels. Low levels of petroleum hydrocarbons similar to diesel and gasoline were also detected in some of the soil samples. (*Ibid.*)

At least ten metals were detected in all samples collected above and below the water table. The highest concentrations were found in samples collected within fill material containing wood and other building debris. Lead and zinc were detected in one sample at concentrations high enough to classify the soil mixture as a hazardous waste. Lead, copper, nickel, cadmium, mercury, and zinc were detected in other samples at levels that potentially could be classified as hazardous wastes, pending the results of further tests. Samples from native Bay mud contained metal concentrations below regulatory limits for hazardous waste. (*Id.*, pp. 48-49.)

¹⁴³ Cyanide and sulfide were detected at trace amounts far below the U.S. EPA level for a reactive waste. Asbestos was reported in four samples at levels ranging from under one percent to ten percent. The ten percent sample exceeds the California regulatory limit for hazardous waste; however, the laboratory procedure cannot distinguish between naturally occurring asbestos minerals and those caused by human activities. (FSA, Vol. I, p. 49.)

Trace amounts of a volatile organic (benzene) and two semivolatile organics were detected at levels below federal and state primary drinking water standards. Polychlorinated biphenyls were not detected in any of the samples. Two of the three groundwater locations contained detectable concentrations of diesel and gasoline. Relatively low concentrations of the pesticide heptachlorepoxy were detected in one groundwater sample. All groundwater samples contained detectable but low concentrations of arsenic, barium, and nickel, which are below federal and state drinking water standards except for barium in one sample, which exceeded California but not federal standards. (*Ibid.*)

SFEC Testimony. Dwight Hoenig¹⁴⁴ testified that based on his review of the soil analyses in the 1989 Pier 94 study, the Phase II ESA, and his "Soil Boring and Sampling Report,"¹⁴⁵ it is likely that the contaminated soils could be managed on-site as non-hazardous waste under a variance issued by the Department of Toxic Substances Control (DTSC). (7/21/95 RT 216-217; 6/13/95 Written Testimony of Dwight Hoenig, Section 6(d).)

According to Mr. Hoenig, there must be evidence of a significant release of toxic materials or a threat of release that may affect public health or the ecosystem before a regulatory agency would require active site remediation. (7/20/95 RT 213-214.) Based on the known and reasonably anticipated contaminants found at the site, construction activities are not likely to result in any significant release of hazardous substances.¹⁴⁶ (Written Testimony of Dwight

¹⁴⁴ Mr. Hoenig, formerly Regional Administrator of the Department of Toxic Substances Control, is General Manager of Mittelhauser Corporation, an environmental consulting firm specializing in property remediation. (7/20/95 RT 210.)

¹⁴⁵ The report is based on 13 boring holes that were 5 or 10 feet deep to analyze heavy metal content in the materials affected by the site grading and excavation plan. The investigation revealed results similar to the Phase II ESA. (7/20/95 RT 229:3-7; 230:3-14; 261:8-17; "Soil Boring and Sampling Report.")

¹⁴⁶ The landfill contains common construction debris found in the Bay Area; it is not a chemical fill site. (7/20/95 RT 219-220.) Although the investigation revealed that metal concentrations, primarily lead, exceed state standards for hazardous waste, the soil pH levels are in the "basic" range (level 7) which indicates that contaminated soil can be managed on-site. (*Id.*, p. 217, 241.) Further, the Bay mud formation under the site is like a membrane and serves as a very good barrier to the vertical movement of contaminants. (*Id.* pp. 218-219.) In addition, while the investigation revealed the existence of carcinogenic polynuclear aromatic hydrocarbons (PAH) associated with creosoted timber deposited in the landfill, these creosote derivatives do not tend to migrate because they are neither

Hoenig, July 13, 1995, Section 6(b).) Further, site development such as grading and construction of foundations, parking lots, and other impervious areas would tend to decrease the potential migration of contaminants from percolation of rainfall into the fill material. (7/20/95 RT 224-225.)

On cross-examination by Intervenors, the witness conceded that additional groundwater investigation would be required.¹⁴⁷ (7/20/95 RT 228:14-15; 245:14-22; 247:19-21.) However, the San Francisco Regional Water Quality Control Board (SFRWQCB) did not raise concerns about the water quality in the monitoring wells at the Pier 94 site which is presumed to be similar to groundwater at the site.¹⁴⁸ (*Id.*, p. 243; 7/20/95 RT 247:13-18; 258:1-2.) Nevertheless, in response to concerns raised by both Staff and the Intervenors, SFEC agreed to conduct additional groundwater investigation under guidance of the DTSC as part of the formulation of the Site Remediation Plan. (9/12/95 RT 257-259, 261.)

SFEC witness Raymond Saito testified that he also reviewed the ESA's and Mr. Hoenig's report and developed a qualitative conceptual pathway analysis to identify potential exposures that may exist at the site. (9/12/95 RT 296.) Mr. Saito concluded that soil is the only viable exposure medium at the site, and then only if someone were to dig on the site. Groundwater would not be an issue for public concern since there are no intake mechanisms such as wells. After the project is constructed, even the exposure pathway of digging into the soils is eliminated. (9/12/95 RT 297-298.)

soluble nor very volatile. (*Id.*, p. 221.)

¹⁴⁷ Mr. Hoenig did not sample underground water in preparing his "Soil Boring and Sampling Report." (7/20/95 RT 232:11-13.) The Phase II ESA stated that "only limited information is currently available concerning the characteristics of groundwater in the study area." (ESA, p. 2-5.)

¹⁴⁸ The SFRWQCB has required since 1987 that the Port submit routine groundwater monitoring reports for the landfill area adjacent to the site. As recently as January 26, 1995, the SFRWQCB did not require the Port to undertake any active remediation on that property other than to conduct surface grading to eliminate ponded water as a mechanism to promote runoff and prevent infiltration. (Written Testimony of Dwight Hoenig, July 13, 1995, Section 6(d); Exhibit 20.)

Staff Testimony. Staff indicated that additional testing would be necessary to characterize the site prior to construction and that remediation measures should be designed to mitigate the potential effects of specific hazardous materials found at the site. (7/20/95 RT 278-284.) Staff proposed a remediation plan that requires SFEC to coordinate its activities under the technical guidance of the SFRWQCB and Region 2 of the DTSC. (9/12/95 RT 253-265; 261-265, 274.) The remediation process includes the following elements:

- SFEC entered into a voluntary clean-up agreement with DTSC Region 2 on July 21, 1995.
- SFEC submitted existing site characterization data to DTSC and SFRWQCB.
- The agencies determined that existing borings should be evaluated to determine groundwater flow and that additional groundwater sampling for volatile organic compounds, total petroleum hydrocarbons, and heavy metals is required to better characterize the level and extent of contamination beneath the site.
- Risk assessments will be conducted to determine the level of site clean-up necessary. For each contaminant detected, the risk or hazard level is analyzed for the potential soil, water, or air migration pathways following EPA guidelines. A qualitative ecological risk assessment will be conducted to identify exposure pathways from contaminated soils and groundwater to aquatic species and habitats.
- If remediation is necessary, SFEC will prepare a removal or remedial action workplan to identify objectives, analyze removal alternatives, describe procedures to excavate, encapsulate, treat, store, handle, transport, and dispose of contaminated materials off-site, describe equipment to be used, describe methods to ensure health and safety of workers and the public during remediation, and set forth the implementation schedule which would occur prior to or during the initial stages of construction. (9/12/95 Staff's Written Supplemental Site Remediation Testimony, as amended 9/14/95; Letter from DTSC to SFEC, September 8, 1995.)

According to Staff, implementation of the appropriate site remediation measures that reduce contaminant levels or block exposure pathways will ensure that no significant adverse impacts will occur to public health or environmental resources due to project construction and operation. (Staff's 9/12/95 Written Supplemental Remediation Testimony as amended 9/14/95.)

Intervenor Testimony. The Intervenors presented the expert testimony of Peter Strauss¹⁴⁹ who reviewed the ESA reports and the "Soil Boring and Sampling Report" and determined that information regarding the level of groundwater contamination was inadequate. (9/8/95 Written Supplemental Testimony of Peter Strauss, p. 7.) The witness asserted that additional investigation into the hydrology of the area, including groundwater flow, is necessary to evaluate whether the project will have a deleterious effect on the Bay ecosystem. (*Id.*, p. 8; 6/20/95 Written Testimony of Peter Strauss, p. 11.)

The witness proposed that if a groundwater monitoring system is installed at the site, the standard for lead contamination should be based on the Water Quality Standard for protection of aquatic life established by the SWRCB. (9/8/95 Testimony of Peter Strauss, p. 7.) Further, soil and groundwater samples should also be characterized for petroleum wastes, especially because recent groundwater samples at Pier 94 show increased amounts of total petroleum hydrocarbons. (*Id.*, p. 9; Exhibit 20.)

The Intervenors also indicated concern that project construction will cause compression of the landfill material due to weight of the buildings and increased truck traffic. As soil is compressed, more contaminants in the soil could migrate to groundwater beneath the site. (6/20/95 Written Testimony of Peter Strauss, p. 11.) In rebuttal, SFEC asserted that the potential for soil compaction due to site development is minimal since any settlement is expected to be measured in inches or not at all.¹⁵⁰ (7/20/95 RT 174:2-22; see also, SFEC's Geotechnical Evaluation, December, 1994.)

¹⁴⁹ Mr. Strauss is Director of Environmental Management for MHB Technical Associates, which specializes in technical, economic, and management evaluations of energy production facilities and environmental management practices.

¹⁵⁰ SFEC witness Raymond Saito stated that he has "been involved in nearly a hundred risk assessments, quantitative and qualitative, and [soil compression causing groundwater absorption of soil contaminants] has never really been something that I've dealt with in dealing with all of the different hydrogeologists and geologists that I have." (9/12/95 RT 306:2-9.) Mr. Saito believes that it is scientifically unlikely that soil contaminants, especially in the clay environment at the site, would be absorbed by the groundwater. (*Id.*, lines 10-22.)

Regarding the remediation plan, the Intervenor argued that the Commission should not make a decision regarding certification until the scope of remediation is determined and subject to public hearing. According to the Intervenor, it is inappropriate under CEQA to delay the resolution of potentially significant environmental issues without specifying the potential optional mitigation and the specific performance criteria for determining what mitigation will be employed. The record does not state what standards or criteria (such as the Water Quality Standards) will be used to identify appropriate mitigation since the investigation is continuing even as the Commission considers certification. (Intervenor's 9/15/95 Comments on 9/12/95 Hearing.)

4. Commission Discussion.

The Commission finds the proposed use of effluent in project operations and the purification and recycling of the subsequent wastewater stream are salutary measures that will prevent impacts to the city water supply and sewage systems. Further, the proposed mitigation measures designed to reduce potential impacts from drainage run-off, sedimentation, and erosion meet NPDES requirements and will adequately protect public health and the environment. The potential for flooding is minimal or non-existent and therefore mitigation is not required.

The evidence is conclusive that contaminated soils exist on the site and that potential migration of such toxic materials, if not contained, could adversely impact public health and the environment. The uncontroverted evidence shows that contaminated soils can be contained on-site and that the potential for migration is minimal or non-existent. Although SFEC's witnesses established that contaminated soils could be managed on-site, Intervenor was concerned that project activities could cause the soils to leach into groundwater underneath the site.¹⁵¹ At the September 12, 1995 Hearing, the parties agreed that more data on groundwater contamination and hydrology were necessary before a remediation plan could be approved and implemented.

¹⁵¹ Regarding soil compaction, SFEC presented sufficient evidence to establish that compression or settlement from project structures will be minimal and should not cause soil to migrate to groundwater levels. The Intervenor did not present any evidence to the contrary.

The Commission therefore finds that the Intervenor's concerns regarding additional groundwater testing have been addressed. Further, sampling for total petroleum hydrocarbons and heavy metals is being conducted as part of the voluntary clean-up plan as requested by the Intervenor.

Whether the contaminated soils can be handled on-site as proposed by SFEC will depend on the extent and levels of groundwater contamination resulting from the soil tests. The Intervenor argued that project certification should be delayed until the final testing results and risk analyses are completed. Intervenor also advocated public participation in the selection of appropriate standards used to conduct the risk analyses. In particular, the Intervenor was concerned that neither the DTSC nor Staff would indicate whether the Basin Plan Water Quality Standards would be applied.

The Commission retains jurisdiction in this case after certification and continues to monitor compliance during the life of the project. However, the Commission as lead agency typically relies on the technical assistance of expert agencies, such as the DTSC, to identify applicable standards in crafting appropriate mitigation measures. The remediation program, which includes the voluntary clean-up agreement between SFEC and the DTSC, has been incorporated into the Conditions of Certification. Public participation is included in the program. (9/12/95 RT 277-278.)

Determination of the appropriate risk assessment standards will be based on the recommendations of the expert agencies in consultation with SFEC, Staff, and the Intervenor.¹⁵² Prior to Commission adoption of this Decision, SFEC must submit its final Site Remediation Plan for Commission approval. Accordingly, the specific performance criteria and mitigation options will be known before certification and the legal authority cited by the Intervenor for delaying the Decision does not apply.¹⁵³ Alternative mitigation measures have

¹⁵² The Intervenor has the opportunity to advocate use of the Basin Plan Water Quality Standards.

¹⁵³ Intervenor cited *Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal. App. 3d 1011, for the proposition that a lead agency may not defer environmental assessment until after project approval. However, that case held that where evidentiary uncertainties are resolved and several optional mitigation measures

been described in the record, which indicates that the contaminated soils can be handled by removal or encapsulation. Potential groundwater contamination, which is unlikely to correlate to the contaminated soils, can be controlled by groundwater monitoring wells.

Prior to construction, SFEC must obtain DTSC approval of a Remedial Action Plan or Removal Action Plan that conforms with applicable law. The Commission finds that compliance with an approved Remedial or Removal Action Plan will ensure that potential impacts from contaminated soils due to project activities are mitigated to levels of insignificance.

COMMITTEE ORDERS.

ORDER 1. *SFEC has proposed two water purification processes (distillation or reverse osmosis); however, the draft Effluent Agreement indicates that reclaimed water delivered to the WPCP may not be produced by a multiple-effect distillation evaporation process. Within 30 days of the date of issuance of this **Proposed Decision**, SFEC is directed to clarify the ambiguity in the record by submitting a revised Project Description of the on-site water purification process that specifies which of the two alternative processes will be employed.*

ORDER 2. *The Site Remediation Plan must be approved prior to construction of this project. Accordingly, SFEC is directed to submit a final Site Remediation Plan, which includes the participation of the Bayview Hunters Point Clean Environment Coalition, within 60 days of the date of issuance of this **Decision**.*

are proposed to the lead agency prior to project approval, "the agency can commit itself to eventually devising measures that will satisfy specific performance criteria articulated at the time of project approval." (*Id.*, p. 1027.) In the present case, analysis of groundwater contamination and alternative remediation plans will be presented to the Commission prior to project approval; the compliance process will ensure implementation of the appropriate mitigation measures.

FINDINGS AND CONCLUSIONS

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

1. Since the urban location of the site does not support productive farmland, construction of the project will not displace or curtail agricultural land uses.
2. Water quality in the San Francisco Bay, which is the only significant surface water feature near the site, has been severely impacted by pollutants associated with industrial development; San Francisco Bay water is not used for drinking water.
3. The site is located within 700 feet of Islais Creek, which has been identified as a potential toxic hot spot by the State Water Resources Control Board and is hydrologically connected with the San Francisco Bay.
4. The project will not adversely affect the availability of city water supplies because all project water requirements, with the exception of potable water needs, will be met by use of secondary wastewater or effluent from the Southeast Water Pollution Control Plant (WPCP).
5. The project will not cause adverse impacts to the city's water quality or sewage systems because operational discharges and purified water produced from the wastewater stream on-site will be routed back to the WPCP through dedicated pipelines.
6. The draft Effluent Agreement between SFEC and the City and County of San Francisco allows the WPCP to accept up to one million gallons per day of reclaimed water from the project.
7. SFEC will obtain stormwater discharge permits pursuant to the National Pollutant Discharge Elimination System (NPDES) requirements and file a Storm Water Pollution Prevention Plan (SWPPP) for elimination of non-stormwater discharges to ensure that potential impacts from run-off will be insignificant. SFEC will also obtain an Industrial Discharge Permit to allow other wastewater discharges to the sewer system.
8. SFEC will develop a Spill Prevention Control and Countermeasures Plan to ensure that run-off contaminated by inadvertent chemical spills will not cause off-site impacts.
9. Since the majority of the site, except for small areas of landscaping, will be covered with structures or other impervious surfaces, the likelihood of erosion is minimal or non-existent.

10. Mitigation measures to limit fugitive dust during construction, such as spraying water or dust suppressants on roads and parking lots and placing fabric covers on open storage piles, will ensure that potential adverse impacts are reduced to insignificance.
11. The potential for tidal flooding from an earthquake-generated tsunami with a 100 year interval is minimal or non-existent since the site is over 1,000 feet from the Bay and protected by several major structures between the Bay and the site. The site is not listed in a flood plain hazard area by the Federal Emergency Management Agency.
12. Contaminated soils are found on-site in the landfill that contains construction debris and other waste material.
13. The evidence is inconclusive whether the on-site soil contaminants migrate to the polluted groundwater beneath the site or whether contaminants have migrated from other sources.
14. SFEC has entered into a voluntary clean-up agreement with Region 2 of the Department of Toxic Substances Control (DTSC) to develop site characterization data, to conduct risk assessments to determine the level of site clean-up, and to develop a Remedial Action Plan or Removal Action plan for Commission approval.
15. SFEC will conduct the remediation process under the technical guidance of the DTSC and the San Francisco Regional Water Quality Control Board (SFRWQCB) in consultation with Staff and the Intervenors. The parties will arrange for public participation in the process.
16. Site remediation measures that reduce contaminant concentration levels or block exposure pathways by which the contaminants could affect public health or ecological systems are considered appropriate mitigation measures that will reduce potentially significant impacts to insignificant levels.
17. Implementation of the mitigation measures, which are incorporated in the Conditions of Certification, will ensure that the project does not pose a significant risk of adverse impact to soil or water resources.
18. Implementation of the Conditions of Certification will ensure that the project complies with all applicable laws, ordinances, regulations, and standards related to soil and water resources as identified in APPENDIX:LORS of this Decision.

CONDITIONS OF CERTIFICATION

SOIL&WATER-1 Prior to initiation of any grading or earthmoving activities at the site or at any associated facilities, the project owner will submit grading and

erosion control plans for concurrent review and approval to the CPM and the Port of San Francisco.

The plan will incorporate the following or similar temporary and permanent measures. The plan will also contain the dust control measures specified in proposed Conditions of Certification AQ-1 and AQ-2. These will be submitted in written form and clearly depicted at appropriate scale on a construction drawing(s). The construction drawing(s) shall clearly show the type of mitigation measure and the location where each measure will be implemented.

Temporary Erosion Control Measures

Temporary stabilization of slopes, spoil piles and other disturbed areas will be achieved through the use of erosion control matting, armoring the surface or equivalent methods during the rainy season.

- Dust control measures will be implemented during construction as necessary to minimize the generation of dust. These measures will include watering or the application of chemical dust suppressants (such as magnesium chloride) to all disturbed areas, including unpaved roads, parking lots and storage piles frequently enough to minimize the generation of dust. Paved roads and parking lots will be swept or flushed with water to minimize off-site soil tracking and fugitive dust.
- To ensure sediment is not transported off-site, sediment barriers will be installed prior to the start of construction. Wastewater generated during construction will be contained in the construction area or treated before discharge.
- Temporary drainage diversions such as ditches and berms will be used as necessary to divert run-off from construction areas to prevent ponding.
- Construction limits will be defined on-site to minimize the area of disturbance prior to construction in any given area.
- Erosion control barriers will undergo periodic inspection and maintenance after storms and run-off as required to assure adequate performance throughout the construction of the project.

Temporary erosion control measures will remain in place and receive periodic maintenance until permanent measures are implemented.

Permanent Erosion Control Measures

- Permanent soil stabilization measures will include, as appropriate, drainage and infiltration systems, slope stabilization, and vegetation. All disturbed areas not occupied by a structure or roadway will be permanently stabilized through paving, revegetation or another form of protection. Traffic areas will be surfaced.
- Run-off from possible oil and chemical contaminated areas, such as the truck unloading area, chemical storage tank areas, and transformer areas will be contained. Storm water contained in these areas will be routed through an oil/water separator, neutralization basin or similar device and then discharged to the wastewater collection system.
- Visual monitoring during facility operation will be performed to identify areas undergoing erosion. Action will be taken to correct identified erosion problems.

Verification: No less than 30 calendar days prior to the start of grading on the project, the project owner shall submit in writing, and with construction drawings, concurrently to the CPM and the Port of San Francisco for review and approval, in consultation with the Bayview Hunters Point Clean Environment Coalition (Coalition), the erosion and sediment control plan. This plan shall include the temporary and permanent erosion control measures required by this Condition or equivalent measures.

SOIL&WATER-2 The project owner shall implement the measures identified in the CPM and the Port of San Francisco approved grading and erosion and sediment control plan.

Verification: 30 calendar days after completion of the final grading and erosion measures, the project owner shall submit to the CPM a final grading, erosion and sediment control report to verify that the measures in the approved plan have been implemented. These shall be submitted in written form and depicted on a construction drawing(s). The CPM shall consult with the Coalition before approving the plan.

SOIL&WATER-3 The project owner shall notify the CPM and Coalition at least 10 working days in advance of the following activities: 1) start of rough site grading for the power plant site and 2) completion of implementing erosion control measures.

Verification: The project owner shall notify the CPM and Coalition in advance of the schedule for the start of these activities. If the schedule changes less than 10 working days prior to the start of these activities, the project owner shall notify the CPM by phone or letter of the changes. The CPM will verify the completion of erosion control measures by a site visit.

SOIL&WATER-4 Prior to the start of construction, 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 Construction Activity Storm Water Permit. As required by the general permit, the project owner will develop and implement a Construction Storm Water Management Plan.

Verification: At least 10 working days prior to the start of construction, the project owner will submit to the CPM a copy of the notice of intent and a copy of the Construction Storm Water Management Plan that was submitted to the State Water Resources Control Board.

SOIL&WATER-5 The project owner shall apply for and obtain an Industrial Pretreatment Program Permit from the City/County of San Francisco for wastewater discharges from the project to the sewer system and the Southeast Water Pollution Control Facility. The project owner shall comply with all discharge standards required by the permit. The project owner shall monitor all discharges to the city sewer system and/or the Southeast Water Pollution Control Plant as required by law or contractual obligation.

Verification: At least 30 calendar days prior to commercial operation, the project owner shall provide to the CPM a copy of a valid Industrial Pretreatment Program Permit which allows project wastewater to be discharged into the local sewers and to the Southeast Water Pollution Control Facility. The project owner shall submit to the CPM in the annual compliance report a monitoring report for all discharges to the city sewer system and/or the Southeast Water Pollution Control Plant. The project owner shall notify the CPM within three working days if the project discharge does not meet the standards set forth in the Industrial Pretreatment Program Permit.

SOIL&WATER-6 Diked chemical storage tank areas shall be sized to contain one hundred percent (100%) of the largest tank's capacity plus the maximum, anticipated 24-hour precipitation with a 1-in-10 chance of occurring. As specified in Conditions of Certification **HAZ-2** and **HAZ-9**, the aqueous ammonia tank containment area shall be sized to also accommodate foam for vapor suppression.

Verification: As required by Conditions of Certification **HAZ-2** and **HAZ-9**, 60 days prior to commencing construction of hazardous materials storage facilities, the project owner shall submit design drawings and specifications for spill containment structures to the CPM for review and approval.

SOIL&WATER-7 Prior to conducting any earth moving activities at the site, the project owner shall submit a Remedial Action Plan or Removal Action Plan approved by the Department of Toxic Substances Control (DTSC)

pursuant to Health and Safety Code sections 25323.1, 25356.1 and 25358.9. The project owner shall implement all site remediation measures specified in either the approved Remedial Action Plan or Removal Action Plan.

Verification: The project owner shall provide the DTSC-approved Remedial Action Plan or Removal Action Plan and the implementation schedule to the CPM and Coalition five working days prior to the start of any earth moving activities at the site. The project owner shall inform the CEC Compliance Project Manager in the monthly compliance reports of the progress of all site remediation measures and provide the results of all soil and groundwater testing.

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BIOLOGICAL RESOURCES

The Commission's analysis of biological resources focuses on two issues: 1) the potential for the proposed project to cause significant adverse impacts to biological resources at or near the powerplant site, along the proposed electrical and steam transmission line corridors, and along gas and water supply pipeline routes; and 2) the reasonable likelihood that the proposed project will conform with applicable laws, ordinances, regulations and standards.

1. Setting.

The powerplant site is an undeveloped parcel adjacent to an animal-rendering facility and several grain elevator structures. The site is situated on bay fill placed there during the 1960's. While essentially flat, the site has been used as a dumping ground for rock, soil, and other debris for many years. Approximately four to five acres would be used for the SFEC powerplant facilities.

This acreage is dominated by coyote brush, a native California shrub, and numerous non-native species such as fennel, yellow star thistle, milk thistle, and pampas grass. Even though there are no trees on the site, planted ornamental trees are found nearby which offer perching opportunities for a variety of bird species, including the red-tailed hawk. The coyote brush provides cover for the local wildlife and there are burrowing opportunities between the various debris piles. Animals presumed to be utilizing the project site are rats, house mice, gophers, skunks, raccoons, and opossums. There are no permanent water resources on the site which could support aquatic life. (AFC, pp. 5.2-1 to 5.2-10.)

2. Potential Impacts.

Facility construction will result in a decrease in wildlife habitat, loss of nesting sites for shrub and ground nesting birds, and loss of raptor foraging habitat.

During field surveys conducted by the Applicant and by the Commission staff, no rare, threatened or endangered species nor species of special concern were found at the proposed project site or in the immediate vicinity. Based upon the significance criteria used by Staff, the proposed project should have no direct effect on any such species. (FSA, Vol. I, p. 378.)

The variety of gas, water, steam and transmission lines for this project will be buried within existing corridors under city streets. Pipeline construction could result in the removal of some planted street trees. Following construction these trees will be replaced with the same species or another species commonly used along San Francisco streets. Temporary removal of any trees would reduce habitat for perching, nesting and roosting of birds. However, the replacement of damaged trees after construction will result in no permanent loss of habitat. (Pipeline Assessment, p. 3-3.)

3. Summary of Evidence and Proposed Mitigation.

Evidence offered by the Applicant indicates that none of the biological impacts of the project will be significant. Therefore, the Applicant states that no mitigation is required. (AFC, p. 5.2-14.) However, SFEC recommends the following "Impact Prevention" measures:

- Avoid known biologically sensitive areas in the vicinity of the facility;
- Minimize the amount of area disturbed by construction; and
- Improve habitat with landscaping and screening plantings following construction.

Staff concluded that the project site has some modest biological resource value which will be compromised by the construction of the proposed facility. Therefore, Staff proposed that a variety of native and non-native trees and shrubs be planted at the project site and maintained to provide nesting opportunities, cover, and food for the local birds and other wildlife. Staff recommended that the plantings chosen be: 1) suitable for the San Francisco peninsula; 2) relatively fast growing; 3) long-lived; 4) drought-tolerant; and 5) provide food and/or cover for local birds and other wildlife. (FSA, Vol. I, p. 379.)

Specific Conditions of Certification regarding these plantings were agreed to by Commission staff and the Applicant and are included as part of the visual screening mitigation measures found in the **Visual Resources** section of this Decision.

No other party introduced testimony on this topic.

Commission Discussion

The Commission has reviewed the analyses of both SFEC and the Staff concerning biological impacts of the project. The project site itself was created from bay fill and is highly disturbed. The various utility and transmission corridors are located beneath city streets and the evidence establishes that these corridors have no biological resource value. Thus, the Commission agrees that the project poses no significant threat to biological resources.

The proposed landscaping measures will ensure that project construction and operation will result in no net loss of wildlife habitat in the area and that the project will comply with all applicable laws, ordinances, regulations and standards adopted to protect biological resources.

FINDINGS AND CONCLUSIONS

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

1. The facility site is in a highly disturbed area devoid of legally significant or protected biological resources.
2. The project is not likely to disturb protected species or the habitat of protected species.
3. No rare, threatened or endangered species or species of special concern are known to occur in the immediate vicinity of the facility.

4. The construction and operation of the project is not likely to have a significant negative impact on any biological resources in the project area, nor contribute to any adverse cumulative impact on biological resources.
5. The project is likely to comply with all applicable laws, ordinances regulations and standards concerning the protection of biological resources contained in the appropriate portion of APPENDIX: LORS of this Decision.

CONDITIONS OF CERTIFICATION

No Conditions of Certification are included under this topic. However, wildlife habitat has been considered in selecting plant species recommended for visual screening of the project. These plant species are listed in the Conditions of Certification which follow the discussion of VISUAL RESOURCES contained in this Decision.

FACILITY RELIABILITY

The Commission examined the reliability issues associated with the San Francisco Energy Company (SFEC) project to determine if the proposed project is likely to be built in accordance with typical industry norms for reliability of power generation, as well as with any project-specific reliability requirements.

Presently, there are no laws, ordinances, regulations or standards which establish either powerplant reliability criteria or procedures for attaining reliable operation. However, the Commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation of the facility (Cal. Code of Regs., tit. 20, § 1752(c)).

Reliability can also affect compliance with the California Environmental Quality Act. If the facility is not constructed and operated in accordance with industry norms, unreliable operation or even failure of the facility could mean that more powerplants would have to be built, creating additional environmental impacts, in order to compensate for the unreliable plant.

1. Setting

The proposed powerplant site is an undeveloped piece of land in an industrial neighborhood. It lies approximately 1/3 mile east of the Southeast Water Pollution Control Plant. While there are no facilities on the site itself, it is adjacent to an animal rendering plant, grain elevators, commercial radio towers, and a parking lot which serves as a Port of San Francisco Intermodal Container Transfer Facility. SFEC proposes to construct new pipelines to carry natural gas and water to the site, and an electrical transmission line to join the powerplant to the interconnected electrical generation system.

2. Potential Impacts

During its analysis Commission staff voiced concerns regarding whether or not the proposed facility would meet its stated reliability criteria or even be able to achieve the more modest level of industry norms. (FSA, Vol. I, p. 86.) This concern was based upon the lack of equipment redundancies in the steam cycle of the powerplant. The original design for the project contained no additional air compressor, and a lack of redundant pumps for cooling water, condensate and boiler feed water. In Staff's view, any failure of the project's steam cycle would force a shut down of the entire plant. (FSA, Vol. II, p. 80.)

Staff also raised a question of whether the project should be required to exceed industry reliability norms in order to satisfy the "San Francisco Operating Criterion" used by Pacific Gas and Electric for reliability planning.

Finally, Staff voiced concerns that, due to the lack of an executed water supply contract, a reliable water supply for the project could not be identified. (FSA, Vol. II, p. 87.)

3. Summary of Evidence and Proposed Mitigation

SFEC presented evidence in support of the facility's reliability and availability, eventually addressing each of the Staff's concerns. (7/11/95 RT 12: 9-15 incorporating : AFC § 4.3; Applicant's Responses to CEC Staff's Data Requests, 10/17/95; 12/23/95; Clarifications to the Preliminary Staff Assessment Reliability section, 6/7/95.)

In response to Staff's concerns about equipment redundancy, SFEC proposed additional equipment as a part of the facility's design. These additions conform with Staff's recommendations reflected in Condition of Certification RELI-1 and include:

- two 100 percent capacity condensate pumps;
- two 100 percent capacity boiler feedwater pumps;

- two 60 percent circulating water pumps; and,
- two 100 percent capacity auxiliary cooling water pumps.

(FSA, Vol. II, at 87; Clarification to the Preliminary Staff Assessment, Reliability at 1, 6/7/95)

SFEC presented evidence to support its position that no greater reliability is required of this facility than for any other facility in the PG&E system. While Intervenor's questions focused on the possible need for additional generation system support after a major earthquake in San Francisco, Applicant showed that earthquakes are only one of a number of potential causes of PG&E system disturbances which could create a need for local generation in San Francisco. SFEC's witness stated that both the San Francisco Operating Criterion and Planning Criteria are designed to protect against disturbances anywhere in the interconnected power system of the western United States. Such disturbances are not limited to the San Francisco peninsula. For example, without the San Francisco Operating Criterion, a major disturbance which occurred in Idaho in December 1994 could have created a major disturbance in the San Francisco peninsula. The witness stated that the loss of a major supply artery in the Northwest is felt throughout the interconnected electrical system and the San Francisco Operating Criterion must be met to prevent problems such as voltage collapse and major outages. (7/7/95 RT 5-6.) Thus, SFEC argues that additional reliability solely to address potential seismic events in San Francisco is unnecessary and that the facility is designed to be as reliable as any in the PG&E system.

To eliminate any questions about water supply, SFEC has agreed to Condition of Certification RELI-2 which requires demonstration of a fully executed water agreement prior to construction of the facility.

The Staff analysis demonstrated that the facility would be built to current standards for seismic design. In the event that an earthquake occurred large enough to damage the facility, the load the powerplant serves would also be damaged. Thus, facility operation immediately

after such an earthquake would not be critical and no additional measures to bolster reliability are required. (FSA, Vol. II, at 86.)

Staff found acceptable the equipment for the facility, the quality assurance and quality control program and SFEC's plan for purchasing from qualified vendors. As noted above, Staff's request for redundant equipment was agreed to by SFEC, thus allowing Staff to conclude that the project is likely to exhibit reliability typical of a powerplant of this type. (FSA, Vol. II, p. 86.) The project, when constructed, would likely be as reliable as any other typical plant in the Pacific Gas & Electric system.

No other party presented evidence on this topic.

4. Commission Discussion

The Commission is satisfied that the Applicant's uncontroverted testimony establishes that the proposed facility will be able to achieve a reliability level consistent with industry norms. This is ensured by Applicant's addition of the component redundancies recommended by the Commission staff. The evidence also establishes that the plant will be as reliable as other powerplants in the PG&E system. There is no evidence in the record that a higher level of reliability is required. The question of water supply is addressed by Condition of Certification RELI-2, requiring a water supply contract prior to the start of construction. Finally, it is clear from the evidence that the project will be built to the latest standards for seismic safety which apply to facilities of this type.

FINDINGS AND CONCLUSIONS

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

1. The chief factors influencing powerplant reliability include design, equipment selection and redundancy, quality control, testing, fuel and water supply, plant maintainability, independent back-up steam generation, and resistance to seismic shaking.
2. Powerplant reliability is assessed based upon industry practices and comparisons.
3. Condition of Certification RELI-1 will ensure adequate redundancies for equipment in the steam cycle of the powerplant.
4. No greater level of reliability is required of this facility than for any other facility in the PG&E system.
5. SFEC has demonstrated that if the proposed design standards are followed, the project is likely to operate at a reliability level consistent with industry norms.
6. The Conditions of Certification will allow the Commission to monitor the project's operating reliability.

CONDITIONS OF CERTIFICATION

RELI-1 Prior to the start of construction, the project owner shall demonstrate that the project will be designed and constructed to incorporate typical levels of equipment redundancy in the facility. This will include, as a minimum:

- two 100 percent capacity condensate pumps;
- two 100 percent capacity boiler feedwater pumps;
- two 60 percent capacity circulating water pumps; and
- two 100 percent capacity auxiliary cooling water pumps.

Redundancy means that these pieces of equipment are installed, piped, wired, tested and ready to operate upon the plant operator's command.

Verification: At least 15 days before the start of construction, the project owner shall submit to the CPM a letter detailing the extent to which redundant steam cycle equipment has been incorporated in the project. This letter shall be accompanied, as appropriate, by plot plan(s) and foundation drawing(s) to demonstrate that the above described redundant equipment will be included in the project.

RELI-2 Prior to the start of construction, the project owner shall demonstrate that a fully executed contract is in place which ensures the project an adequate supply of water for both construction and operation of the project.

Verification: At least 15 days before the start of construction, the project owner shall submit to the CPM a copy of the fully executed contract which ensures a supply of water adequate to meet all plant water needs for construction and operation.

RELI-3 The project owner shall maintain monthly data sets of powerplant reliability and maintenance data, including logs of equipment failure data and operational data for all major equipment, including the gas turbine, steam turbine, generators, heat recovery steam generator, and duct burner, condenser, feedwater system pumps, selective catalytic reduction system, and major pumps; as well as logs of plant and major equipment forced outages, including their causes and durations.

If the project owner provides complete and regular reports of plant reliability to the North American Electric Reliability Council's Generation Availability Data System (NERC GADS), then that reporting shall *take the place of* the above requirement.

This Condition shall remain in effect until such time as the project owner and the CPM mutually agree that there is no further value in reporting this information to the CPM.

Verification: The project owner shall maintain records of the above information at the project site, and make them available for audit by the CPM at any reasonable time. The project owner shall also submit a summary of the above information to the CPM in each Annual Compliance Report following commercial operation of the plant.

EFFICIENCY

The overall configuration of a cogeneration facility is inherently more efficient than a separate powerplant and industrial facility. This is because after generating electricity, waste heat from the powerplant is put to beneficial reuse in the production of steam for the thermal host. The Warren-Alquist Act grants certain benefits to powerplants which qualify as cogeneration facilities and sets forth specific standards of energy use which must be met by a project in order to qualify.¹ In addition, the California Environmental Quality Act (CEQA) guidelines (Cal.Code Regs. tit. 14, § 15126(c), Appendix F) require that projects be examined for significant adverse impacts upon energy resources and supplies. The Commission must find both that a project meets the efficiency standards and that the project will not have a significant adverse impact on energy resources.

This project was selected as the winner of a bid process directed by the California Public Utilities Commission (CPUC). One requirement of the CPUC's Request for Bid (PG&E 1993, Vol. 1, p. 5, § V.A) is that the winning project meet the definition of a Qualifying Facility under the Public Utility Regulatory Policies Act (PURPA),² as determined by the Federal Energy Regulatory Commission (FERC). (18 C.F.R. Part 292.205(a).)

¹ Public Resources Code section 25134 defines "cogeneration" as the sequential use of energy for the production of electrical and useful thermal energy where:

- (a) at least 5 percent of the cogeneration project's total annual energy output shall be in the form of useful thermal energy.
- (b) useful energy follows power production, the useful annual power output plus one-half the useful annual thermal energy output equals not less than 42.5 percent of any natural gas and oil energy input.

² The definition of a Qualifying Facility under PURPA is similar to the language in the preceding footnote.

1. Setting.

The Applicant proposes to design, develop, construct and operate a 240 MW cogeneration powerplant located near Hunters Point. The project will consist of a combined cycle cogeneration powerplant comprised of a 140 MW General Electric MS7001FA gas turbine generator with evaporative inlet air cooler, a heat recovery steam generator (HRSG) and duct burner,³ and a 100 MW steam turbine generator. The powerplant will provide heat energy, in the form of steam turbine extraction steam to the San Francisco Thermal, L.P. via an underground pipeline, for use in district heating and cooling.⁴ Alternatively, the project will supply cogeneration steam to an adjacent water reclamation facility which will take secondary treated wastewater from the nearby Department of Public Works Southeast Water Pollution Control Plant (WPCP), further purify it, and return it to the WPCP for use as nonpotable treated wastewater. (AFC, p. 1-33.)

2. Potential Impacts.

The Commission must examine the likelihood that the facility as designed will meet the qualifications of a "FERC Qualifying Facility", as required by the CPUC's request for bid. The Applicant must also establish that the project will operate under the definition of a cogeneration facility. (Pub. Resources Code, § 25134.) The Applicant must also show that the project will use fuel in an efficient manner, thereby avoiding any significant adverse impacts to the environment as defined in CEQA. The Commission must also determine whether the project would cause a substantial increase in demand for existing energy resources or necessitate the development of new energy sources.

³ A heat recovery steam generator, or heat recovery boiler, creates steam from the heat of the exhaust gases of a gas turbine; this steam is then used to power a separate steam turbine generator, effectively utilizing energy which would otherwise be wasted. A duct burner, located between the gas turbine and the HRSG, allows the production of additional steam.

⁴ Applicant entered an executed steam sale agreement with San Francisco Thermal, L.F. on September 8, 1995. A copy of the agreement was presented at the hearing of September 12, 1995.

3. Summary of the Evidence and Proposed Mitigation.

The Applicant submitted evidence demonstrating that the project will exceed the requirements of PURPA and the Warren-Alquist Act for both the operating standard and the efficiency standard. (AFC, pp. 1-32 to 1-34; Supplemental Information on Efficiency, 8/26/94; Applicant's Data Response EFF-1, Steam Pipeline Assessment, 1/20/95.) The Applicant established that its facility will meet an operating standard of 11 percent, where 5 percent is required; that it will achieve an efficiency standard of 47.6 percent, where 42.5 or 45 percent is required for the state and federal standards respectively. (SFEC Response to Intervenor Data Request dated 2/28/95.)

To ensure a steam host for the facility, the Applicant had agreed with a proposed Condition of Certification EFF-1, requiring that prior to commencement of construction, the project owner must enter a contract to provide sufficient quantities of cogeneration energy to either the San Francisco Department of Public Works or to San Francisco Thermal Ventures. That Condition was satisfied on September 8, 1995, when SFEC executed a steam sale Agreement with San Francisco Thermal, L.P. Applicant's evidence also demonstrates that the facility will be designed and constructed in accordance with all applicable laws, ordinances, regulations and standards. (7/18/95 RT 94-95; AFC, p. 1-33 to 1-34.)

Evidence presented by the Commission staff shows that the facility will meet the applicable FERC and State of California operating and efficiency standards for a cogeneration facility. (FSA, Vol. II, pp. 91-102.) Staff's analysis shows that the project will burn fuel at an efficiency of 52.3 percent, which favorably compares to the 32 percent efficiency of the existing PG&E system; this level of efficiency is also roughly equivalent to the 52 percent achievable from the newest, most efficient non-cogeneration electric powerplants. (FSA, Vol. II, p. 98.) Staff determined that the project's configuration and generating equipment represent the most efficient feasible combination to satisfy the project objectives.

Staff concludes, "While the project will consume substantial amounts of energy, it will do so in the most efficient manner practicable. In actual operation, the project will displace power that would have been generated by other, less efficient plants serving the PG&E system. The end result is thus likely to be a beneficial, rather than adverse, impact on energy resources." (FSA, Vol. II, p. 100:12-15.)

No other parties submitted evidence on this topic.

4. Commission Discussion

The Commission can conclude that, based on the uncontroverted evidence of record, the project will comply with State and Federal definitions of cogeneration efficiency, and will represent an efficient combination of machinery types which will use fuel efficiently to achieve its purposes. Furthermore, the project will comply with all applicable laws, ordinances, regulations and standards pertaining to powerplant efficiency.

FINDINGS AND CONCLUSIONS

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

1. The project is a cogeneration project designed to provide heat energy to San Francisco Thermal, L.P.
2. The project qualifies as a FERC Qualifying Facility, as required of the winner of the CPUC'S Biennial Resource Plan Update bid process.
3. The project is expected to meet the specific standards in the Warren-Alquist Act which define a cogeneration project.
4. Fuel chargeable to power for the project will be burned at an efficiency of 52.3 percent which compares favorably to the 32 percent efficiency level of the existing PG&E system, and is also equivalent to the 52 percent achievable from the most efficient non-cogeneration electric powerplants.

5. The project will use fuel use efficiently and will not have a significant adverse impact on existing fuel supplies.
6. The project configuration (combined cycle cogeneration) and generating equipment chosen appear to represent the most efficient feasible combination to satisfy the project objectives.
7. The project will comply with all laws, ordinances, regulations and standards which pertain to the efficiency of powerplants.

CONDITIONS OF CERTIFICATION

EFF-1 Prior to commencement of construction, the project owner shall complete a final signed contract with either the San Francisco Department of Public Works or with San Francisco Thermal Ventures, L.P. to provide cogeneration energy in quantities sufficient to allow the project to qualify as a cogeneration facility.

Verification: Prior to commencing any element of construction, the project owner shall transmit to the California Energy Commission Compliance Project Manager (CPM) a copy of the fully executed contract for supply of cogeneration energy with either of the entities described above.

EFF-2 The facility shall be operated in accordance with the requirements of Title 18, Code of Federal Regulations, Part 292.205(a) and shall operate as a cogeneration facility as defined under Public Resources Code section 25134.

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

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

Verification: The project owner shall maintain the above records, and the above calculations showing compliance with the required standards, at the project site, and make them available for audit by the CPM at any reasonable time. The project owner shall also submit the above calculations of the operating standard and efficiency standard, showing compliance with the

required minimum standards, to the CPM in each Annual Compliance Report following first power generation from the plant.

FACILITY DESIGN/GEOLOGIC HAZARDS¹

Review of facility design includes the civil, electrical, mechanical, and structural engineering elements related to design, construction, and operation of the project and its component systems. This analysis also reviews whether the geologic hazards that may affect project design, construction, and operation have been adequately identified and mitigated.²

The evidence is based on SFEC's preliminary design proposals; thus, the findings are necessarily limited to whether the project has been described in sufficient detail to provide reasonable assurance it will be constructed in accordance with all applicable laws, ordinances, regulations, and standards. Implementation of the Conditions of Certification will verify the project's compliance with the required legal and engineering standards.

Staff proposed several Conditions of Certification which include review, inspection, and auditing during construction by the appropriate building inspectors as well as peer review of pile foundation design to ensure compliance with building code requirements. Staff also proposed certain modifications to the project design which were accepted by SFEC and included in the Conditions. (FSA, Vol II, pp. 25-26, 47.)

The Intervenors raised concerns about the sufficiency of information regarding the operating/reliability criteria following a major earthquake and the justification for the Importance

¹ The Commission considered these topics together because the seismic issues related to geologic hazards affect the project's design requirements.

² The Commission is also required to review whether significant impacts to geological resources, such as disturbing or limiting access to mineral or gem deposits, have been considered and mitigated. There was no evidence of mineral resources or unique scientific geologic features at the site; accordingly, no significant impacts to geologic resources should occur from project construction or operation. (FSA, Vol. I, p. 40; AFC, p. 5.14-22.)

Factor used in the plant design calculations. (Written Testimony of Gregory Minor, pp. 13-14.) These concerns are discussed in the Summary of Evidence below.

1. Setting.

The project site is located on reclaimed land composed of artificial fill over Bay sediments. Elevations across the site vary between 5 and 15 feet above mean lower low water (MLLW) level. (AFC, p. 5.14-12; FSA, Vol. I, p. 36.) The site is not subject to tidal flooding. (AFC, p. 5.14-20.)

The artificial fill (clay, medium dense silty sand, gravel, and construction debris) varies in thickness from 10 to 43 feet with an average thickness of 31 feet.³ (FSA, Vol. II, p. 31.) Young Bay Mud (soft to medium stiff silty clay) occurs below the fill material and varies in thickness from about 37 to 61 feet. (FSA, Vol. I, p. 36.) For design purposes, the top of the Young Bay Mud is estimated at 31 feet below ground level, corresponding to the average thickness of the artificial fill. (FSA, Vol II, p. 31.)

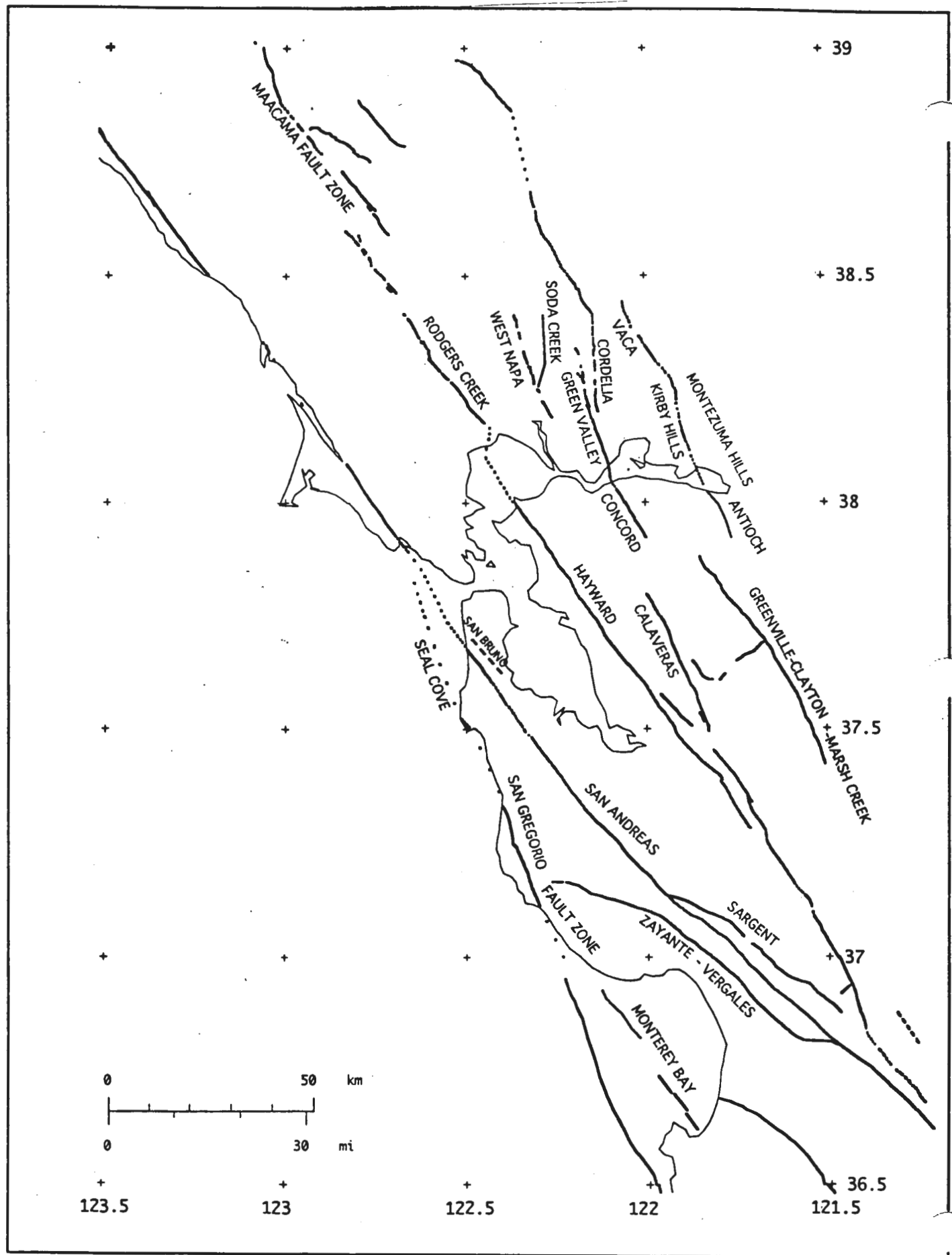
Bay-Side Sands/Gravel (dense to very dense sand) is present beneath the Young Bay Mud and varies in thickness from about 7 to 18 feet. Old Bay Mud (stiff to very stiff clays and dense to very dense sand) underlies the Bay-Side Sands at about 75 feet below ground.⁴ (FSA, Vol. I, p. 36.) Weathered or competent rock (highly to completely weathered serpentine) was identified at between 127 and 163 feet below ground level. (FSA, Vol. II, p. 31.)

³ The artificial fill exhibits a high groundwater table and contains significant quantities of groundwater in hydraulic connection with the Bay and the Islais Creek Channel. Since the facility design does not require any excavations to the depth of the water table, no groundwater inflow occurs and no dewatering is necessary. (AFC, p. 5.14-20.)

⁴ The Bay-Side Sands and Old Bay Mud provide the bearing support for pile foundations throughout the Bay Area. (FSA, Vol. I, p. 36.)

The site and associated facilities are located in seismic Zone 4 where the greatest seismic shaking can be expected to occur over the design life of the facilities. (FSA, Vol. II, p. 37.) The closest potential seismic source is the San Andreas Fault Zone located about 8 miles west

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4-6-94 NW/20

(Source: AFC FIGURE 5.14-1.)

Figure 5.14-1
Principal Quaternary Faulting

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of the site. The next closest is the Hayward Fault, located about 10 miles to the east. See DESIGN FIGURE 2. The peak horizontal ground acceleration in the firm soils below the soft Young Bay Mud is estimated at 0.43g, which would result from a magnitude 8.0 earthquake on the San Andreas Fault. Peak ground accelerations from various seismic events are shown in DESIGN TABLE 1 below:

DESIGN TABLE 1
Major Faults Potentially Affecting the Site

FAULT	DISTANCE AND DIRECTION FROM SITE (Miles)	MAXIMUM CREDIBLE EARTHQUAKE (Richter Magnitude) (Mualchin 1992)	PEAK GROUND ACCELERATION AT THE SITE FOR FIRM SOILS BELOW THE SOFT BAY MUD* (Campbell 1981)
San Gregorio	15 West	7.5	0.2g**
San Andreas	8 West	8.0	0.43g
Hayward	10 East	7.5	0.28g
Calaveras	20 East	7.5	0.16g

(Source: FSA, Vol. I, p. 38, Geology Table I adapted from AFC Table 5.14-1.)

* The Young Bay Mud and artificial fill underlying the sites can be expected to lengthen the period at which maximum ground motion occurs and to amplify the spectral accelerations at longer periods. This condition increases the hazard to structures.

** Acceleration of gravity (g) = 32 ft/sec² OR 980.665 cm/sec²

2. Potential Impacts.

Seismic events may cause structural damage to the facility, including the storage tanks containing hazardous materials, and affect the project's capability to produce power after a major seismic event. SFEC's proposed seismic structural performance criteria are designed to meet

the requirements established in the Uniform Building Code (UBC) as incorporated into the California Building Code (CBC).¹⁶² (FSA, Vol. II, p. 40.)

3. Summary of Evidence and Proposed Mitigation.

Accepted Design Practices. SFEC will follow accepted industry standards and design practices in all relevant design and construction activities: site preparation and grading (FSA, Vol. II, p. 32); design and construction of the steam, water, and gas pipelines and the underground transmission line (*Id.*, pp. 32-33); loads, load combinations, and load factors for concrete and steel structures (*Id.*, pp. 38-39); structural design methodology (*Id.*, pp. 43-46); and design criteria for the mechanical and electrical systems. (*Id.*, pp. 47-48).

SFEC will also adopt a Quality Assurance/Quality Control program to ensure the project is designed, procured, fabricated, and installed in accordance with typical power industry standards and applicable law. (*Id.*, p. 48.)

Seismic Design Criteria. The CBC requires the following performance criteria for Seismic Zone 4:

- Resist minor levels of earthquake ground motion without damage;
- Resist moderate levels of earthquake ground motion without structural damage, but with some nonstructural damage; and
- Resist major levels of earthquake ground motion without collapse, but with some structural as well as nonstructural damage. (FSA, Vol. II, p. 40.)

DESIGN TABLE 2 below lists specific structures and the corresponding equivalent lateral load factors that will be used to comply with the CBC. SFEC has added special design features to account for seismic hazard, including an Importance Factor of 1.25 which is higher than the

¹⁶² Title 24, California Code of Regulations, Part 2.

1.0 required by the CBC for major structures and equipment. SFEC has also designed the facility with an Importance Factor of 1.50 instead of the 1.25 required by the CBC for storage tanks containing hazardous materials. (7/13/95 RT 64-65.) These higher Importance Factors offer a significant degree of added assurance that the project will withstand severe seismic events.

DESIGN Table 2 also shows lateral forces on elements of structures and nonstructural components supported by structures. Calculations were based on the CBC standard which includes vertical seismic motion as two-thirds of the horizontal acceleration. (AFC, p. 5.14-19.)

DESIGN TABLE 2
Major Structures and Components

Major Structure/Equipment	Formula	Seismic Zone Factor (Z)	Importance Factor (I)	Horizontal Force Factor (C or C _p)	Numerical Coefficient (R _w)
Building* and Equipment Enclosure	CBC 34-1	0.4	1.25	C = 2.75**	8**
Caustic acid and ammonia storage tanks and their foundations and anchorage	CBC 36-1	0.4	1.50	C _p = 0.75	N.A.
Foundations for steam and combustion turbine/generator and wet surface condenser	CBC 34-1	0.4	1.25	C = 2.75	4
Foundation for heat recovery steam generator (HRSG)	CBC 34-1	0.4	1.25	C = 2.75	4
HRSG exhaust stack, its foundation and anchorage	CBC 34-1	0.4	1.25	C = 2.75*	4

Source: Adopted From AFC, Appendix B, Table B-1; FSA, Design Table 2, Vol. I, p. 41.

** Value is approximate and may be revised during detailed design to reflect the final configuration.

* The Administration Building will be designed with an Importance Factor of 1.0

While the structures are designed to withstand frequently occurring earthquakes with the response stresses within yield point¹⁶³ with minor damage, the structures are designed and detailed to survive major earthquakes by ensuring that the members and connections are able to resist the most severe cyclic seismic formations beyond yield point without significant loss of their load carrying capacities or structural functions. (AFC, Appendix B, p. 26.)

Adverse soil conditions require special design features to mitigate the influence of Young Bay Mud during a seismic event. (FSA, Vol. II, pp. 32-34.) Major structures will be supported on concrete pile foundations to withstand the effects of static and seismically induced forces and settlements on structures. Based on Staff's recommendation, SFEC developed a Pile Design Process to ensure that the final design of the pile foundations will satisfactorily account for the adverse soil conditions and also comply with applicable standards and codes.¹⁶⁴ (*Ibid.*)

Foundation design must account for settlement of the Young Bay Mud as well as structural settlement.¹⁶⁵ (*Id.*, p. 33.) To mitigate against excessive settlement, Staff recommended that use of spread footings be limited to structures that can tolerate up to six to eight inches of settlement. Mat foundations, with relatively large areas, may also be subject to excessive total and differential settlement. In these cases, Staff recommended that the foundation and structure be lowered to reduce soil stress and settlement. (*Ibid.*)

¹⁶³ "Yield point" refers to the design strength of materials such as concrete, steel, and steel used for concrete reinforcement that are manufactured in accordance with standard engineering calculations to ensure the materials will withstand stress from flexure and shear movements due to seismic events.

¹⁶⁴ Condition STRUC-5 provides a peer review process for experts to evaluate final pile design. Public participation in the peer review process will be available. (7/13/95 RT 128-129.)

¹⁶⁵ Surface settlement due to compression of the Young Bay Mud is still ongoing. Although 95 percent consolidation of the Young Bay Mud has occurred and 100 percent is expected over the life of the project, placement of new fill for construction could cause additional settling. Therefore, the final plant layout and selection of the plant grade will be designed to minimize the placement of additional fill. (FSA, Vol. II, p. 31.)

Concrete pile foundations used to support the vertical and lateral loads caused by the project's major structures/equipment will extend into the Bay-Side Sands and Old Bay Mud to develop adequate allowable skin friction and end bearing in the event of seismic shaking.¹⁶⁶ Downdrag forces resulting from consolidation of the Young Bay Mud and seismically-induced settlement of fill materials will be included in the final pile designs. (FSA, Vol. II, p. 35.)

Prior to final design, a series of indicator test piles will be driven at various locations on the site to estimate capacities, verify structural integrity, and calculate potential settlement of the piles. The expert testimony indicates that settlement of piles will be negligible. (*Ibid.*)

Intervenors' Concerns. The Intervenors raised concerns regarding SFEC's seismic calculations. In particular, they argued that SFEC failed to account for the vertical seismic forces that occur with thrust faults, such as those exhibited in the Northridge earthquake in Los Angeles, and that the public needs to be reassured that the project design is adequate by addressing the Northridge lessons. (Written Testimony of Greg Minor, pp. 11-12.)

The Intervenors asserted: 1) that vertical accelerations are not mentioned in the FSA;¹⁶⁷ 2) the analysis failed to consider the effects of vertical forces being transmitted from bedrock to the base of the foundation by the pilings; and 3) although the CBC calls for the vertical to be scaled from the horizontal accelerations by a factor of two-thirds, it also provides that alternative factors may be used when substantiated by site-specific data. (*Ibid.*)

¹⁶⁶ The piles are not expected to extend down to bedrock since they will reach competent materials before bedrock depth. The piles will follow deformations of the Bay Muds and will thus experience the same seismic forces as the muds. The Bay Muds filter out high frequency seismic waves, which will reduce impacts to the project foundations. (7/13/95 RT 76-78.) However, in the event of an earthquake, the Bay Mud and artificial fill will lengthen the period at which maximum ground motion occurs and amplify the spectral accelerations at longer periods. (AFC, p. 5.14-20.) This expected motion has been verified through earthquake studies of the San Francisco area that recorded ground motion on artificial fill sites. (AFC, p. 5.14-7.)

¹⁶⁷ Note, however, the AFC at p. 5.14-19 states that vertical motions are taken as two-thirds of horizontal motion under the UBC.

SFEC asserted that the fault structure in the San Francisco Bay area produces greater horizontal acceleration than the fault structure in the Los Angeles Basin. The faults in the Bay Area are strike slip faults that are typically almost vertical and move horizontally relative to one another. (7/13/95 RT 37.) See DESIGN Table 3.

By contrast, the faults in Los Angeles, where the Northridge earthquake was located, tend to be thrust faults that produce greater vertical motion.¹⁶⁸ (7/13/95 RT 37.) With the exception of three data stations, the data from the Northridge earthquake revealed that the vertical acceleration was still less than two-thirds the horizontal acceleration.¹⁶⁹ (*Id.*, p. 35.)

SFEC therefore contended that even though comparisons between the Los Angeles Basin faults and the Bay Area faults are inappropriate, the same law of physics applies, i.e., vertical accelerations tend to be two-thirds of the horizontal accelerations. (*Id.*, pp. 28-29, 32-36.)

According to SFEC's expert testimony, the waves in a horizontal direction produce "shearing forces" which are the main cause of damage to buildings due to their "pulling apart" motion while vertical forces are more like pushup motions. (*Id.*, p. 32.) Moreover, vertical waves do not affect saturated soil that is found beneath the site; although the effect of vertical waves will not be zero, these forces will be dampened by the soil so that impact will be very small.¹⁷⁰ (*Id.*, pp. 78-80, 84.)

¹⁶⁸ While the 1989 Loma Prieta earthquake exhibited a vertical thrust component, it is the only seismic zone in the greater Bay Area where thrust faults have been identified; ground movement was minor compared with the horizontal component of the San Andreas fault which caused 30 feet of movement during the 1906 earthquake. (7/13/95 RT 81-82.)

¹⁶⁹ The U.S. Geologic Survey discussed the data in "Strong Ground Motion Generated by the Northridge Earthquake of January 17, 1994: Preliminary Implications for Site-Dependent Design Spectra," Roger D. Borshardt, USGS, April, 1994. (Testimony of Greg Minor, fn. 15; 7/13/95 RT 34.) SFEC contends the peculiar data points which exceeded the peak vertical accelerations cannot be used for standardized rulings because they do not represent typical trends. (7/13/95 RT 36.)

¹⁷⁰ SFEC's expert witness on geotechnical earthquake engineering, Ignacio Aranga, co-authored a seminal study on the effects of vertical acceleration on saturated soils. (7/13/95 RT 84:7-23; 85:1-5.)

DESIGN TABLE 3

Table 5.14-1 Principal Fault Sources and MCE Ground Motion at Hunters Point

Fault	Type	Activity	MCE^a	Distance km	PGAg^b
Seal Cove	Normal/ oblique slip?	Active (creep)	6.9	21	0.18
San Gregorio Fault Zone	Strike slip	Active	7.25	26	0.18
Rodgers Creek	Strike slip	Active	7	48	0.09
Maacama Fault Zone	Strike slip	Active	7.25	91	0.05
West Napa		Active	6.5	50	0.06
Soda Creek		Potentially active	6.25	58	0.05
Green Valley	Strike slip	Active (creep)	6.75	42	0.09
Cordelia	Strike slip	Potentially active	6.5	57	0.05
Concord	Strike slip	Active (creep)	6.5	39	0.08
Kirby Hills/ Montezuma Hills/ Vaca		Potentially active	7	60	0.07
Antioch		Potentially active	6.75	58	0.06
Greenville/Clayton/ Marsh Creek	Strike slip	Active	7.25	45	0.11
Calaveras	Strike slip	Active	7.5	33	0.16
Hayward	Strike slip	Active	7.5	17	0.28
Sargent	Reverse oblique	Active	6.75	75	0.05
San Andreas	Strike slip	Active	8	13	0.43
San Bruno		Potentially active	6.6	9	0.29
Zayante/Vergales	Reverse oblique	Potentially active/active	7.25	63	0.08
Monterey Bay	Strike slip?	Active	6.5	92	0.03

^a maximum credible earthquake

^b peak ground accelerations

SFEC's final design will be based on the CBC's static analysis rather than the alternative dynamic analysis favored by the Intervenor. Since the facility's structures are simple and symmetrical with direct load paths as compared with complex, irregular, multi-storied buildings that require a dynamic analysis, use of the static analysis includes the necessary conservative assumptions. (7/13/95 RT 42-43.) At the hearing, the Intervenor's expert conceded that a static analysis in this case is appropriately conservative. (7/13/95 RT 156:1-3.)

The key concern advanced by the Intervenor, however, was whether the project design will adequately ensure the project's ability to produce electricity after a major earthquake. The Intervenor maintained that project reliability depends on raising the Importance Factor to 1.50 for overall facility design. SFEC asserted that compliance with the CBC addresses the reliability issue:

We would expect that any powerplant or any facility categorized in the Uniform Building Code as being required to be available after an earthquake, would be available after an earthquake. And that is the reason we go to the Building Code to find the applicable criteria for design. (7/13/95 RT 87:14-18.)

Moreover, SFEC contended that this facility only needs to be designed to be as reliable as any other generating facility on the PG&E system.¹⁷¹ Staff agreed with SFEC that there are no specific reliability requirements for this project that exceed those of any other powerplants connected to the utility grid system. (7/13/95 RT 116-117.)

4. Commission Discussion.

The Intervenor's dispute with the seismic design criteria used in this case appears to challenge well-established engineering standards that apply to all structural engineering in the

¹⁷¹ SFEC's design requires the concrete foundation to resist a potential Richter 8 seismic event as delineated in the CBC. (7/13/95 RT 106.) The CBC assumes a 10 percent probability of occurrence during the next 50 years, which calculates out to the equivalent of 475 years recurrence. Since the facility has a life of 25 years, the probability is proportionally less. (*Id.*, p. 41.)

Bay Area. However, the Intervenor failed to present compelling evidence that other presumptions or standards should be applied.

SFEC's evidence persuasively established that reliance on the scientific requirements established in the CBC, including the two-thirds ratio for horizontal and vertical seismic accelerations, is state-of-the-art engineering practice. Moreover, SFEC's witnesses were familiar with the United States Geologic Survey (USGS) data on the Northridge earthquake and explained the discrepancies regarding the two-thirds ratio as aberrations, rather than rules of seismic behavior as the Intervenor proposed. (7/13/95 RT 29:7-13; 35-39.) The Intervenor failed to establish their position with credible scientific data. Therefore, the weight of the evidence indicates that the seismic behavior of the Northridge event does not appear relevant to earthquake science in the Bay Area.

The Intervenor also argued that SFEC should apply site specific design analysis rather than rely on the standard CBC formulas.¹⁷² However, the evidence is clear that SFEC will design the project foundations and structures to accommodate the specific soil conditions underlying the site. (7/13/95 RT 40-41.) Since the foundation piles will not extend to bedrock, the Intervenor's concerns that vertical forces could be transmitted from the bedrock through the piles is unfounded because saturated soils are not affected by pushup or P waves characteristic of vertical acceleration. (7/13/95 RT 76:5-25; 77-80; 84:7-17.) Moreover, the use of the Importance Factor of 1.25 rather than the standard 1.0 demonstrates that site specific conditions have been applied in the design process.

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¹⁷² Contrary to the Intervenor's assertion, the CBC only requires a "site specific" analysis to justify the use of alternative factors: "[a]lternative factors may be used when substantiated by site-specific data." (CBC § 2335(b).) Accordingly, a site specific analysis is not required unless a factor different from the specified 2/3 of horizontal acceleration is used in the calculation.

Finally, no evidence was presented to establish that the reliability requirements for the proposed facility should exceed those of any other powerplants in the PG&E system.¹⁷³ To the contrary, the evidence conclusively indicates that compliance with CBC requirements for electric powerplants in seismic Zone 4 provides adequate seismic reliability. (7/13/95 RT 85-87.) Hence, the Intervenor failed to prove that reliability issues require major structures of the project (except for storage tanks) to be designed with an Importance Factor of 1.50.

The Intervenor requested continued public participation in the design process, in particular, the peer review pile design process. As a matter of Commission policy, public participation is always encouraged. Public involvement in the project's final planning stages will be part of the process through the Bayview Hunters Point Clean Environment Coalition.

The following modifications recommended by Staff have been included in the Conditions of Certification:

- Design specifications for the combustion turbine generator foundation must specify the loading combinations with load factor(s) that will be used in the final design.
- Include load combinations specified in the 1992 CBC section 2411 (equations 11-4, 11-5, and 11-6) when designing concrete structures.
- Include load combinations specified in the 1992 CBC section 2710(d)2, and section 2710(e) when designing steel structures.
- Storage and containment structures for sulfuric acid, sodium hypochlorite, and aqueous ammonia must be designed with an importance factor $I=1.50$ to satisfy the Hazardous Materials Management requirements.

¹⁷³ The project is not a state-owned facility or designated as an essential facility to provide shelter during or after seismic events. State-owned or leased structures in that category are subject to CBC, *State* Chapter 23. Since this project is a private facility, it is subject to the requirements of CBC, Chapter 23, Table 23L, which specifies importance factors for earthquake reliability of 1.25 for hazardous structures and 1.0 for all other structures. SFEC had added an element of conservatism by raising the importance factors to 1.50 for hazardous materials storage tanks and 1.25 for the major project components. There is no requirement for the facility to meet the *State* CBC standards for essential facilities.

- During pile driving and in service, pile splices must be designed to develop the required strength in compression, bending, tension, shear and torsion at the point of splice. These splices should be located to minimize these requirements. Welded splice joints must consider the effects of heat and subsequent splitting and spalling near the splice.
- If doweled splices, using cement or epoxy grout are used, adequate curing must be attained before the driving operations.
- Care must be taken to avoid a discontinuity at the point of splice as this will result in tensile destruction of the pile. The use of epoxy grout and a doweled splice accomplishes this continuity if properly installed.

With these modifications, the evidence demonstrates that the project as described in the record can be designed, constructed, and operated in conformance with all applicable law and good engineering practice. Implementation of the Conditions of Certification set forth below ensure that the project will comply with the relevant standards.

FINDINGS AND CONCLUSIONS

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

1. The evidence is based on SFEC's preliminary design proposals.
2. SFEC will follow accepted industry standards and design practices in all relevant design and construction activities: site preparation; underground transmission lines and steam, water, and gas pipelines; loads, load combinations, and load factors for concrete and steel structures; structural design; and mechanical and electrical systems.
3. SFEC will adopt a Quality Assurance/Quality Control Program to ensure the project is designed, procured, fabricated, and installed in accordance with typical power industry standards and applicable law.
4. Seismic events may cause structural damage to the facility, including the storage tanks containing hazardous materials, and affect the project's capability to produce power after a major earthquake.
5. Concrete pile foundations will be designed to mitigate adverse soil conditions due to settlement of Young Bay Mud or seismic events. A peer review pile design process will be implemented to finalize pile designs.

6. Seismic faults in the San Francisco Bay Area are predominantly strike slip faults that move horizontally and are not likely to behave in the same manner as the thrust faults in the Los Angeles Basin which have more vertical movement; thus, the 1989 Northridge earthquake data are not indicative of likely seismic events in the Bay Area.
7. SFEC reliance on the California Building Code, which factors vertical seismic acceleration as two-thirds of horizontal seismic movement, is appropriate engineering practice.
8. SFEC will employ site specific design analysis such as the peer review pile design process and the use of Importance Factor 1.25 (1.50 for hazardous materials storage tanks) instead of the CBC standard of 1.0 (1.25 for storage tanks).
9. The reliability requirements for the proposed facility do not exceed those of any other powerplants in the PG&E system and therefore the Importance Factor of 1.25 is more than adequate to ensure the project's ability to produce electricity after a major earthquake.
10. There is no evidence of mineral resources or unique scientific geologic features at the site; accordingly, no significant impacts to geologic resources should occur from project construction or operation.
11. Implementation of the Conditions of Certification set forth below will ensure the project is designed and constructed to conform with applicable law relating to its civil, electrical, mechanical, and structural engineering elements.
12. Review of the available information in the evidence of record establishes that the proposed project and associated facilities can be designed and constructed in compliance with all applicable laws, ordinances, regulations, and standards as identified in APPENDIX: LORS in this Decision.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall furnish to the California Energy Commission Compliance Project Manager (CPM) and to the Chief Building Official (CBO)¹⁷⁴ a schedule of structural plan submittals, a Drawing List, and a Specifications List. The schedule shall contain a description and list of proposed submittal packages for structural plans, calculations, and specifications for major structures and equipment (below). The project owner shall furnish monthly schedule updates.

¹⁷⁴ CBO is the City or County Chief Building Official, his or her representative, or the Energy Commission's duly appointed representative.

Major Structures

Combustion (Gas) Turbine Generator (CTG) Pedestal and Foundation
Steam Turbine Generator (STG) Pedestal and Foundation
CTG/STG Enclosure Structure
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
Plume Abated Cooling Support Structure and Foundations
Natural Gas Compressor Structure and Foundations
Equipment Foundations (compressors, pumps, transformers)

Major Equipment

CTG/STG
HRSG
CTG Inlet Filter Structure
Shop-Fabricated Pressure Vessels
STG Condenser
Plume Abated Cooling Tower
Natural Gas Compressor
Main Step-up Transformers
Boiler Feedwater Pumps
Switchgear

Verification: At least 60 days (or a lesser number of days mutually agreeable to the project owner and the CBO)¹⁸ prior to the start of the first increment of new construction (typically defined as site preparation), the project owner shall submit the schedule, Drawing List, and Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEN-2 The project owner shall make payments to the CBO equivalent to the fees listed in the 1992 California Building Code (CBC), Chapter 3, section 304 and Table No. 3-A; Chapter 70, section 7007 and Table No. 70-A and 70-B (or the appropriate tables of the relevant section of the currently adopted California Building Code (CBC)) for plan review and permits. If the local agency has adjusted the CBC fees by Code or Ordinance, the project owner shall pay the adjusted fees.

¹⁸ Unless specifically stated otherwise, this phrase applies to all verifications that have a time requirement.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, calculations, specifications, and the soils report. 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 fees have been paid.

GEN-3 Prior to the start of site preparation, the project owner shall assign at least one of each of the following qualified engineers to the project, all of whom must be registered in California: A) a resident construction engineer; B) a responsible civil engineer; C) a registered geotechnical engineer; D) a responsible design engineer who is either a structural engineer, or a civil engineer who is fully competent and proficient in the design of powerplant structures and equipment supports; E) a responsible mechanical engineer; and, F) a responsible electrical engineer.

If any engineer 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 approval.

Protocol A: The resident construction engineer shall:

- monitor construction progress to ensure compliance with the design intent;
- assure that the construction of all the facilities complies with the civil work construction criteria, all applicable laws, ordinances, regulations, and standards, approved plans and specifications; and
- assure the conformance of all structural erection with all applicable laws, ordinances, regulations, and standards, approved plans, and specifications.

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

Protocol B: The responsible civil engineer shall:

- design (or be responsible for design), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities to comply with the Commission's Decision. At a minimum, these include: grading, site preparation, excavation and compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and

- provide consultation to the resident construction engineer during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in the construction procedures.

The tasks performed by the responsible engineer may be divided between two or more civil engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, related civil works, civil structures, transmission line civil works). No segment of the project shall have more than one responsible engineer.

Protocol C: The geotechnical engineer shall:

- review all the engineering geology reports, and prepare a final soils grading report;
- prepare the soils engineering reports required by Chapter 70 of the 1992 CBC (or the relevant sections of the currently adopted CBC);
- be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in Chapter 70 of the 1992 CBC (or the relevant sections of the currently adopted CBC);
- recommend field changes to the responsible civil engineer and to the resident construction engineer;
- review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and
- prepare reports on foundation investigation to comply with Chapter 29 of the 1992 CBC (or the relevant section of the currently adopted CBC).

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

Protocol D: The responsible design engineer shall:

- be directly responsible for the design of the proposed structures and equipment supports;
- provide consultation to the resident construction engineer during design and construction of the project;

- monitor construction progress to ensure compliance with the design intent;
- evaluate and recommend necessary changes in design; and
- prepare and sign all major building plans, specifications and calculations.

The tasks performed by the responsible design engineer may be divided between two or more civil or structural engineers as long as each civil or structural engineer is responsible for a particular segment of the project. No segment of the project shall have more than one responsible design engineer.

Protocol E: The responsible mechanical engineer shall:

- be responsible for, and sign and stamp a statement with each mechanical submittal to the CBO that the proposed final design plans, specifications, and calculations conform with all of the mechanical engineering design requirements set forth in the Commission Decision.

The tasks performed by the responsible mechanical engineer may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project. No segment of the project shall have more than one responsible mechanical engineer.

Protocol F: The responsible electrical engineer shall:

- be responsible for the electrical design of the project; and
- sign and stamp all electrical design drawings, plans, specifications, and calculations.

The tasks performed by the electrical engineer may be divided between two or more engineers, as long as each electrical engineer is responsible for a particular segment of the project. No segment of the project shall have more than one responsible electrical engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

Verification: At least 30 days prior to the start of site preparation, the project owner shall submit to the CBO for review and approval, the name(s), qualifications and registration numbers of the all engineers listed in this Condition. The project owner shall also submit to the CPM a copy of the CBO approval of the qualifications of all registered engineers in the Monthly Compliance Report.

If any engineer is subsequently reassigned or replaced, the project owner has 10 days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for approval. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

GEN-4 Prior to the start of the first activity requiring special inspection, the project owner shall assign to the project at least one construction engineer who shall be responsible for the special and continuous inspections required by the 1992 CBC section 306 (or the relevant section of the currently adopted CBC).

Welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels) shall be inspected by a certified weld inspector (certified AWS and/or ASME as applicable).

Verification: At least 14 days prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the construction engineer(s), certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all construction engineers and special inspectors in the next Monthly Compliance Report.

If the construction engineer, certified weld inspector, or other certified special inspector is subsequently replaced or re-assigned, the project owner has 10 days in which to submit the name(s) and qualifications of the newly assigned individual(s) to the CBO for approval. The project owner shall notify the CPM of the CBO's approvals of the construction engineer, certified weld inspector, or other certified special inspector within five days of the approval.

GEN-5 The project owner shall obtain the CBO's final approval of any 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 with 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.

Verification: Within 15 days of the completion of any work, the project owner's responsible design engineer shall submit to the CBO, with a copy to the CPM, (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-6 The project owner shall keep the CBO informed regarding the status of construction. If a discrepancy is discovered during construction, the project owner shall, within five days, prepare and submit a non-conformance report (NCR) describing the nature of the discrepancies to the CBO. The NCR shall reference this Condition of Certification and applicable sections of the CBC. The project

owner shall submit a periodic construction progress report to the CBO according to the reporting frequency required by the CBO.

Verification: A list of the NCR for the reporting month shall also be included in the next Monthly Compliance Report.

GEN-7 The project owner shall design, construct, and inspect the project in accordance with applicable design criteria identified herein and with the legally required industry standards.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible engineers, attesting that all design, construction, inspection, and installation requirements of all applicable laws, ordinances, regulations, and standards, and the Commission Decision have been met in the areas of civil, structural, mechanical, and electrical engineering.

The project owner shall provide the CPM a copy of the Certificate of Occupancy in the next Monthly Compliance Report after receipt of the permit from the CBO.

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 CBC, section 7006(d), 1992 edition. The certified engineering geologist(s) assigned must be approved by the California Energy CPM.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove the engineering geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual to the CPM. The CPM will approve or disapprove the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist shall carry out the duties required by CBC (1992 or most recently adopted edition) sections 7006(d) and 7015(a)3. Those duties are:

- Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.
- Monitor geologic conditions during construction.
- Prepare the Final Geologic Report.

Protocol: The Engineering Geology Report required by CBC section 7006(d) shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy, 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 CBC section 7015(a)3, shall contain: a 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 CBC.

Verification: (a) Within 15 days of submittal of the application(s) for grading permit(s) to the CBO, other designated authority, or the Commission's duly authorized representative, 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; (b) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Geologic Report required by CBC section 7015(a)(3) 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:

- the design of proposed drainage structures, and the grading plan;
- an erosion and sedimentation control plan (combined grading plan);
- the related calculations and specifications, signed and stamped by the responsible civil engineer; and
- the soils report as required by Chapter 70 of the 1992 CBC (or the relevant section of the currently adopted CBC).

Verification: At least 14 days prior to the start of site grading, the project owner shall submit the documents described above to the CBO for review and approval. Within 14 days of 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 construction engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the geotechnical engineer identifies unforeseen adverse geologic conditions. The project owner shall prepare and submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected areas.

Verification: The project owner shall provide to the CPM a copy of the CBO's approval to resume earthwork and construction in the affected areas within five days of the CBO granting the approval.

CIVIL-3 All plant site grading operations shall be subject to inspection by the CBO and the CPM. The project owner shall perform inspections in accordance with Chapters 3, 29 and 70 of the 1992 CBC (or the relevant sections of the currently adopted CBC). If the project owner's inspector discovers that work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately to the project owner's responsible civil engineer, the CBO, and the CPM. The project owner shall prepare a written report detailing the discrepancies and non-compliance items, and send copies to the CBO and the CPM.

Verification: Within 5 days of the discovery of the discrepancies, the project owner shall transmit to the CBO and the CPM an NCR, and the proposed corrective action. These reports shall reference the corresponding Conditions of Certification and all applicable laws, ordinances, regulations, and standards. 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 next Monthly Compliance Report.

CIVIL-4 After completion of the finish grading of 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.

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

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the applicable designs, plans and drawings of the following:

- major project structures;
- major foundations, equipment supports and anchorages;
- large field fabricated tanks;
- turbine/generator pedestal; and
- switchyard structures.

Protocol: The project owner shall:

- obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the most conservative shall govern (i.e., highest loads, or lowest allowable stresses). All plans, calculations, and specifications for foundations that support structures should be filed concurrently with the structure plans, calculations, and specifications;
- submit to the CBO the required number of copies of the plans, specifications, calculations, and other required documents of the designated major structures at least 90 days prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation; and
- ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, modifications approved in this Decision, 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.

Verification: At least 30 days 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 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 statement from the CBO that the proposed building plans, specifications, and calculations have been approved and are in conformance with the requirements set forth in the applicable laws, ordinances, regulations, and standards.

STRUC-2 As a minimum, the project owner shall submit to the CBO the required number of sets of the following:

- concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
- concrete pour sign-off sheets;
- bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
- field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number [ref: AWS]); and
- reports covering other structure activities requiring special inspections in accordance with the 1992 CBC section 306 (or the relevant section of the currently adopted CBC).

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 five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval to the CPM within 14 days provided specific test results comply with identified requirements. If disapproved the project owner shall, within 5 days, advise the CPM of the reason for disapproval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 1992 CBC section 303, (or the relevant section of the currently adopted CBC), 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 sufficient quantities of highly toxic or explosive substances, hazardous to the safety of the general public if released, shall be designed to comply with exception 2 of the 1992 CBC section 2336(b). This section requires that the value for I of 1.5 shall be used for design.

Verification: At least 30 days prior to the start of installation of the tanks or vessels containing aqueous ammonia, sodium hypochlorite, or sulfuric acid, 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.

STRUC-5 Prior to the submittal of the pile foundation plans, designs, and calculations to the CBO for review and approval, the project owner shall perform a peer review of the pile foundation design to ensure compliance with all applicable laws, ordinances, regulations, and standards. A peer review protocol shall be reviewed and approved by the CBO and the CPM.

The peer review shall include, but not be limited to:

- Review of geotechnical report(s) for the project, including recommended piling and vertical and lateral load capacities.
- Lateral load pile analysis including the load versus displacement for a single pile and pile group effects.
- Lateral displacement of a pile over pile length for unit loading at the top of the pile and lateral displacement for large and small soil displacements.
- Influence of pile group effects on lateral load capacities of the pile foundations; adequacy of the soil model(s) to be used in pile lateral load analysis.
- Estimates of pile curvatures over the entire length of the pile, including the Young Bay Mud, during seismic shaking; effects of seismically-

induced bending moments in the piles. The review shall also include the performance of spliced piles under seismic design loading conditions.

- Structural design concept and analysis to show that the proposed pile foundation will perform satisfactorily under seismic design loading conditions.
- A pile load test procedure (program) to verify the adequacy of axial tension and compression and lateral load design criteria of the piles.

The recommendations of the peer review group shall be incorporated in the final design of pile foundations.¹⁷⁶

Verification: At least 30 days prior to the start of the peer review process, the project owner shall submit to the CBO and the CPM the proposed peer review protocol and the qualifications of the peer review group. The CBO and CPM shall provide comments to the project owner within 15 days after receipt of the proposed peer review protocol and the peer review group's qualifications. The peer review group shall submit its comments, analysis, and recommendations to the project owner for inclusion in the final design. Copies of the peer review group's comments, analysis, and recommendations shall be submitted to the CPM and to the CBO with the final design plans.

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, other than domestic water, refrigeration systems, and small bore piping, e.g., piping and tubing with a diameter equal to or less than two inches. The submittal shall 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 appropriate code listed below. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction.

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

- the proposed final design plans, specifications, and calculations conform with all of the piping requirements set forth in the Commission Decision;

¹⁷⁶ The peer review group shall include a representative from the Bay View/Hunters Point Community Advisory Committee (CAC).

- 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
 - National Fire Protection Association (NFPA), or their successors.

Verification: At least 30 days prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the proposed final design plans, specifications, calculations and quality control procedures for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Commission Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the 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 applicable laws, ordinances, regulations, and standards. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation.

Protocol: The project owner shall:

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

Verification: At least 30 days prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval 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 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 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 of the final design plans, specifications, calculations, and quality control procedures for that system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

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

Verification: At least 30 days prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable standards, ordinances and laws, 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 the CBO's approval the final design plans, specifications, calculations, and quality control procedures for all plumbing systems, potable

water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the county.

Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction.

Protocol: The project owner shall design, fabricate, and install:

- 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 the relevant section(s) of the currently adopted California Plumbing Code and Title 24, California Code of Regulations); and
- 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 (or the relevant section of the currently adopted Title 24, California Code of Regulations).

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 Commission Decision.

Verification: At least 30 days prior to the start of construction of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with all applicable laws, ordinances, regulations, and standards, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

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

ELEC-1 For the 13.8 kV and lower systems, the project owner shall not begin any increment of electrical construction until final 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 all applicable laws, ordinances, regulations, and standards.

Verification: At least 30 days prior to synchronization with the PG&E Transmission System, the project owner shall submit to the CPM a statement signed by the CBO that the electrical equipment installations have been installed, inspected, and approved. The following activities shall be reported in the Monthly Compliance Report:

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

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:

- a. Final plant design plans to include:
 - one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
 - system grounding drawings;
 - general arrangement or conduit drawings; and
 - other plans as required by the CBO.
- b. Final plant calculations to establish:
 - short-circuit ratings of plant equipment;
 - ampacity of feeder cables;
 - voltage drop in feeder cables;
 - system grounding requirements;
 - coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;
 - system grounding requirements;
 - lighting energy calculations; and
 - other reasonable calculations as customarily required by the CBO.
- c. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Commission Decision and the California Electric Code.

Verification: At least 30 days prior to the start of each increment of electrical equipment installation, the project owner shall submit to the CPM a copy of the transmittal letter to the CBO for the items listed above.

INDUSTRIAL SAFETY AND FIRE PROTECTION

Under this topic the Commission takes an interdisciplinary approach to examining the project's safety features insofar as workers are concerned. The analysis incorporates information from the disciplines of Public Health, Hazardous Materials, and Industrial Safety as well as a review of San Francisco Energy Company's Safety and Health Programs. These programs include general safety requirements, a basic protective equipment guide, the outline of the Injury Illness Prevention Program, and measures proposed to comply with other applicable laws, ordinances, regulations, and standards.

1. Setting.

The project site is located on Port of San Francisco property in an area surrounded by heavy industry, including the Darling International animal-rendering plant and several grain elevator structures. The project will be located on five acres of undeveloped industrial land.

The San Francisco Fire Department will provide the fire services and the emergency medical services. The nearest emergency medical facility is San Francisco General Hospital, located less than two miles from the site. The City of San Francisco Port Commission's Fire Marshal will review and approve the project's fire protection plans as part of the Port's building permit process.

2. Potential Impacts.

Facility construction, operation, and maintenance activities expose workers to the hazards identified in SAFETY TABLE 1. Accidents during these activities may affect worker health and safety. These potential impacts may be minimized through adherence to appropriate engineering design criteria and compliance with applicable laws, ordinances, regulations and standards. (AFC, p. 5.7-1.)

3. Summary of the Evidence and Proposed Mitigation.

Safety programs applied at the project will include preventive engineering, education and enforcement measures. Engineering techniques include substituting less hazardous materials, designing out hazards, and prescribing protective equipment. Education includes training personnel in safe procedures and practices, teaching personnel to do a job correctly, teaching personnel what hazards exist in a product, process or task, and teaching personnel how to take appropriate protective actions. Enforcement of federal, state and local regulations results in adequate margins of safety and adequate levels of fire prevention. (FSA, Vol. I, p. 337.)

SAFETY TABLE 1
Potential Worker Hazards

Activity	Hazard
Facility Construction	
Elevated work	Falls
Welding	Flash burns, explosion, thermal burns, toxic welding fumes
Excavations	Excavation/trench wall collapse, spoil movement, oxygen deficiency, build-up of toxic gasses, fumes, vapors, dusts or mists, wet exposures, crushing hazards, confined spaces
Cement/forms work	Falls, protruding objects, slips, trips, caustics, punctures, and lacerations
Equipment operation	Noise exposure, vehicle accidents, load hazards; induced current*
HRSO fabrication	Particulate exposure, welding fumes, overhead hazards, confined spaces
Transmission lines/transformer station	Fall hazard, electrocution, flash burns
Painting	Paint solvents, paint vapors, chemical burns, fire/explosion, falls
Abrasive blasting	Dust, flying particles, pressure vessels, noise
HRSO unit cleaning	Chemical exposure, high pressure systems, thermal burns, noise exposure
Powered hand tools	Noise, dust, flying particles, cuts, amputation, crushing
Fueling	Fire and explosion, environmental contamination
Facility Operation	
Generation enclosure	High voltage
Operations building	High voltage, repetitive trauma
Cooling unit	Falls, noise, wet exposures, chemical exposure
HRSO	NH ₃ , noise, heat, steam, pressure
HRSO stack	Heat, falls
Transformer	Electrical (i.e., electrocution and flash burns)
Gas compressor	Flammable, noise, temperature, rotating equipment, pressure
Compressed gas storage	Fire and explosion
Chemical storage	Chemical splashes, burns, reactions, gases, vapors, and fumes
Machinery, general	Noise, temperature extremes, rotating equipment, electrocution

* Induced current is a potential hazard at Port Site only.

(Source: AFC, Table 5.7-1.)

To ensure adequate protection for the health and safety of its workers, the Applicant will develop a series of safety plans and manuals to address both construction and plant operation hazards.

The major safety plans for the construction phase are:

- Construction Injury and Illness Prevention Program (IIPP) (Cal. Code Regs., tit. 8, § 1509);
- Construction Fire Protection and Prevention Plan (Cal. Code Regs., tit. 8, § 1920); and
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 1514 - 1522).

The Construction Safety Orders also contain additional specific worker safety and health requirements applicable to construction activities. In addition, the requirements of the Electrical Safety Orders (Cal. Code Regs., tit. 8 §§ 2299 - 2974) and Unfired Pressure Vessel Safety Orders (Cal. Code Regs., tit. 8, §§ 450 - 544) will be applicable to the project. (FSA, Vol. I, p. 341.)

During the operation phase of the project, many of the Electrical Safety Orders and Unfired Pressure Vessel Safety Orders noted above will be applicable. In addition, the Division of Industrial Safety has promulgated regulations applicable solely to operations. These are contained in the General Industry Safety Orders (Cal. Code Regs., tit. 8, § 3200 et seq.) The Applicant will incorporate these requirements into its Project Operation Safety and Health Program, the major elements of which include:

- Injury and Illness Prevention Program (Cal. Code Regs., tit. 8, § 3203);
- Emergency Action Plan (Cal. Code Regs. tit. 8, § 3220);
- Fire Prevention Plan (Cal. Code Regs., tit. 8, § 3221); and
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401 - 3411).

The Applicant's health, safety and fire protection program will include over 40 different elements to reduce or eliminate hazards related to the construction and operation of the facility.¹⁷⁷

Commission staff reviewed the Applicant's proposals and found them adequate. Staff noted that if the Conditions of Certification are followed, they will ensure adequate worker safety and the project will comply with applicable laws, ordinances, regulations, and standards. (FSA, Vol. I, p. 345.)

No other party provided evidence on this topic.

4. Commission Discussion

The evidence of record uniformly indicates that the Conditions of Certification below provide adequate assurance that all reasonable steps will be taken to assure worker safety at the project and that the facility will comply with the applicable laws, ordinances, regulations and standards which pertain to worker safety and fire protection. The specific measures will be developed in a series of construction and operation plans. These plans will be reviewed by various agencies such as the City of San Francisco Fire Department and Cal OSHA to ensure that worker safety is adequately addressed.

FINDINGS AND CONCLUSIONS

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

1. Potential worker hazards at the site during construction and operation include handling, storage, and use of hazardous materials; high noise levels; temperature extremes;

¹⁷⁷ A complete list of the elements contained in the Applicant's Health, Safety and Fire Prevention Program is found on pages 5.7-5 and 5.7-6 of the AFC, and is included in this Decision as SAFETY TABLE 2 following the Conditions of Certification for this section.

operating heavy and mechanical equipment; energized equipment and tools; steam; confined spaces; atmospheric contaminants; excavation and trenching; electrical hazards; compressed gases and/or liquefied flammable and nonflammable gases; elevated work; and high-pressure vessels.

2. Applicable laws, ordinances, regulations and standards are designed to minimize threats to worker health and safety.
3. The measures contained in the Conditions of Certification will adequately protect plant personnel from incidents related to spills and routine handling of hazardous, toxic, and flammable materials as well as from fire and explosive accidents.
4. The project will meet all applicable laws, ordinances, regulations, and standards, including those applicable federal, state, and industry worker safety standards, identified in the pertinent portion of APPENDIX: LORS of this Decision.

CONDITIONS OF CERTIFICATION

SAFETY-1 The project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program as follows:

Project Construction Safety and Health Program

- Construction Injury and Illness Prevention Program
- Construction Fire Protection and Prevention Plan
- Personal Protective Equipment Program

Protocol: The Construction Injury and Illness Prevention Plan shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the San Francisco 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, incorporating Cal-OSHA's Consultation Service comments, and a letter from the City of San Francisco Fire Department stating that they have reviewed and accept the Construction Fire Protection and Prevention Plan.

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 Requirements

Protocol: The Injury and Illness Prevention Plan, Emergency Action Plan, and Personnel Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health

(Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Fire Protection Plan and the Emergency Action Plan shall be submitted to the San Francisco 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 Consultation Service comments and a letter from the San Francisco Fire Department stating that they have reviewed and accept the specified elements of the Operation Safety and Health Plan.

The project owner shall notify the CPM that the Project Operation Safety and Health Program which includes the Injury and Illness Prevention Plan, the Fire Protection Plan, the Emergency Action Plan, and the Personal Protective Equipment requirements, together with all records and files on accidents and incidents, are present on-site and available for inspection.

SAFETY-3 The project owner shall design and install all exterior lighting to meet the requirements contained in the Visual Resources Condition of Certification VIS-8 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 illuminances contained in ANSI/RP-7 and the Conditions of Certification in this Decision were used as a basis for the design and installation of the exterior lighting.

WASTE MANAGEMENT

The waste management analysis evaluates SFEC's proposals to mitigate the risks and environmental impacts associated with the handling, storage, and disposal of project-related hazardous and non-hazardous wastes. The Commission must determine whether:

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

1. Setting.

The site is located on the southern portion of Seawall Lot 344 and adjacent to Seawall Lot 352, a portion of which is a former solid waste disposal site closed by the Port of San Francisco in 1990.¹⁷⁸ A larger 60-acre landfill area which included portions of Lot 344 was also closed at that time. (FSA, Vol. I, p. 352; AFC, p. 5.6-1.)

SFEC conducted Phase I and Phase II Environmental Site Assessments (ESA) of the site to determine the presence of hazardous substances or petroleum products in the ground, groundwater, or surface water.¹⁷⁹ (AFC, p. 5.6-1 and AFC Appendix N.) SFEC's data indicated that chemicals of concern were generally present in the fill material over the entire site.¹⁸⁰ Since there is no history of hazardous substance use or storage at the proposed site,

¹⁷⁸ See, San Francisco Bay Regional Water Quality Control Board Site Closure Order No. 87-061.

¹⁷⁹ See the Soils and Water section in this Decision for a detailed discussion of Phase II ESA results and the Site Remediation Plan.

¹⁸⁰ These chemicals include metals, organic compounds, and low concentrations of pesticides and polychlorinated biphenyls found at random locations within the fill material; the data show no clear concentration trends with depth. (FSA, Vol. 1, p. 353.)

the most likely sources of contamination are on-site fill material, illegal disposal of waste both on-and off-site, and migration of contaminants from surrounding properties. (FSA, Vol. I, p. 353.)

2. Potential Impacts.

The generation of hazardous and non-hazardous wastes could adversely affect the community unless appropriate handling, storage, and transport procedures as well as mitigation measures are implemented. However, there is no evidence that the *amount* of hazardous or non-hazardous wastes to be generated by the project will cause significant impact to the available waste disposal facilities.

3. Summary of Evidence and Proposed Mitigation.

a. Construction. Non-hazardous wastes from construction include debris and other materials requiring removal during site grading and excavation, excess concrete, lumber, scrap metal (e.g., ferrous metals, copper and aluminum from wiring) and empty non-hazardous chemical containers. (AFC, Vol. I, p. 356.) SFEC estimates that about 40 cubic yards of non-hazardous waste per week may be generated. (*Ibid.*; AFC, p. 5.12-3).

Solid metal wastes are generally salvageable and various wastes such as cardboard and paper will be recycled. (FSA, Vol. I, pp. 356-357; SFEC Data Response Oct. 17, 1994, WM-2). Non-office construction waste will be stored in dumpsters on-site and transported to the City of San Francisco Solid Waste Transfer and Recycling Center. During construction, the general contractor will be responsible for trash collection and disposal services. (*Ibid.*)

Hazardous wastes that may be generated during construction include contaminated soil from excavation activities, waste oil and grease, paint, spent solvent, welding materials, cleanup

materials from spills of hazardous substances, and cleaning solutions from pre-operational chemical cleaning of the boiler and preboiler systems of the heat recovery steam generator. (FSA, Vol. I, p. 357.)

There will be no on-site treatment of hazardous construction-related wastes. Chemical wastes will be stored on-site less than 90 days in portable tanks and transported off-site by a specialty chemical cleaning contractor prior to treatment or disposal. (FSA, Vol. I, p. 357; AFC, p. 3-52; 5.12-6.) Quantities of other hazardous wastes will be minimal and temporarily stored on-site in approved containers prior to being transported to licensed treatment, recycling, or disposal facilities. (*Ibid.*)

Site preparation activities, which include leveling, soil excavation, and earth moving, will conform with the requirements of the Site Remediation Plan as described in the SOILS AND WATER RESOURCES section of this Decision. (FSA, Vol. I, p. 357.) Soils classified as hazardous wastes will be managed, transported, treated, and disposed in accordance with environmental health standards for the management of hazardous waste. (Cal. Code Regs., tit. 22, § 66001 et seq.)

b. Operation. The evidence shows that less than eight cubic yards of non-hazardous solid wastes will be generated on a weekly basis and to the extent feasible 40 percent of that waste, such as office-related materials, will be recycled. (AFC, Vol. I, p. 357; SFEC Data Response, Oct. 14, 1994, WM-1). Remaining non-hazardous wastes, such as dry solids from treatment of secondary effluent water, will be hauled to the City of San Francisco Solid Waste Transfer and Recycling Center. (FSA, Vol. I, p. 358.)

An estimated 9.4 million gallons per week of non-hazardous wastewater will be generated and piped to the Southeast Water Pollution Control Plant (WPCP) for treatment and/or discharge by the WPCP under its existing National Pollutant Discharge Elimination System (NPDES) permit. (SFEC Data Response, Oct. 14, 1994, WM-1; 7/13/95 RT 182:3-4.)

Hazardous wastes generated during routine project operation include cleaning solutions, spent air pollution control catalyst, used oil, used cleaning solvents, waste paint, contaminated cleanup materials, and empty chemical containers. (FSA, Vol. I, p. 358.) All hazardous wastes will be handled, stored, transported, treated, and disposed in accordance with applicable federal, state, and local law. (AFC, p. 5.12-6.) The facility is considered a hazardous waste generator and will obtain an EPA hazardous waste generator identification number from the Department of Toxic Substances Control (DTSC) pursuant to state regulations. ((*Ibid.*; CCR, tit. 22, § 66262.12.)

The heat recovery steam generator (HRSG) requires cleaning every three to five years, a process which generates about 60,000 gallons of acid and alkaline chemical cleaning waste solutions and flushing waters. This hazardous waste contains dissolved metals, and will be transported off-site, treated, and disposed by a licensed chemical cleaning contractor in compliance with applicable law. (AFC, pp. 3-52, 5.12-5.)

The oxidation catalyst, used for CO emissions control, and the selective catalytic reduction catalyst, used for NOx emissions control must be replaced after several years' service. Spent catalysts, which contain heavy metals, will be sent back to the manufacturer for recycling. (AFC, p. 3-52.)

Approximately 1300 gallons of waste oil will be generated annually, stored on-site in approved containers less than 90 days, and removed by a licensed waste oil recycling contractor. (AFC, pp. 3-51, 5.12-4, 5.12-6.) Spent solvents will also be stored temporarily in containers and shipped within 90 days to a solvent recycling facility. (SFEC Data Response, Oct. 14, 1995 WM-2.)

Used containers of hazardous substances, such as chemical containers or oil filters may be classified as hazardous wastes. However, if managed according to regulatory guidelines, such containers may be considered non-hazardous. (Cal. Code Regs, tit. 22, §§ 66261.7, 66266.130; FSA, Vol. I, p. 358.)

Landfills. Solid waste will be hauled from the City of San Francisco Solid Waste Transfer and Recycling Center to the Altamont landfill, a Class II facility,¹⁸¹ located about 60 miles from San Francisco in Alameda County. The landfill currently has about 17 million tons of remaining capacity and ten years of remaining life. It accepts about 1.6 million tons annually (over 4,000 tons per day). Anticipated expansion plans will add 50 to 100 years of available life to the facility. (FSA, Vol. I, p. 358.) The evidence of record establishes that the amounts of non-hazardous wastes generated during project construction and operation are minimal compared with existing disposal capacity, and will not cause significant impacts to the Altamont landfill.¹⁸²

Since much of the project's hazardous wastes such as oil and spent catalysts will be recycled, the evidence indicates that remaining amounts of hazardous wastes should be minimal and will not significantly impact the capacity of any Class I landfill in California.¹⁸³ There are three Class I landfills in California permitted to accept hazardous waste:

- Chemical Waste Management's Kettleman Hills facility in Kings County. One unit has about eight million cubic yards of remaining capacity out of a total permitted capacity of ten million cubic yards. An additional unit has approximately 4.5 million cubic yards of capacity that could become available following reconstruction of that unit.

¹⁸¹ State regulations establish site classifications and waste management requirements for waste treatment, storage, or disposal in landfills: Class I for hazardous waste; Class II for designated waste; and Class III for non-hazardous waste. (CCR, tit. 23, § 2510 et seq.)

¹⁸² Construction wastes will be less than three tons per day, while operation wastes will be about one ton a day. (FSA, Vol. I, p. 359; 7/13/95 RT 184-185, 189.) This constitutes 0.03 percent of existing disposal capacity. (7/13/95 RT 185:6-7.)

¹⁸³ Until further soil analysis is done prior to construction, the amount of contaminated soil that may be classified as hazardous is unknown. Further, encapsulation of contaminated soils may be appropriate under the Site Remediation Plan. However, Staff estimated that about 40,000 cubic yards of soil could be removed for foundation construction purposes. The existing capacity in California's hazardous waste landfills, assuming no future expansion, totals about 15 million cubic yards. If all the soil removed for foundation preparation work at the site were classified as hazardous, the impact on statewide hazardous waste capacity would be insignificant, totalling about one-third of one percent. (FSA, Vol. I, p. 359.)

- Laidlaw Environmental Service's Lokern facility in Buttonwillow (Kern County). The permitted capacity is six million cubic yards with about 4.5 million remaining. A permit modification to increase capacity to 14 million cubic yards is being pursued.
- Laidlaw Environmental Service's facility in Westmoreland (Imperial County). The estimated remaining capacity is 2.5 million cubic yards although re-permitting and expansion is expected.

Cumulative Impacts. The expert witnesses presented by SFEC and Staff concluded that cumulative impacts will be insignificant for both hazardous and non-hazardous wastes due to the minor amounts of wastes generated during project construction and operation, the insignificant impacts on individual disposal facilities, and the availability of additional regional landfills. (FSA, Vol. I, p. 359; 7/13/95 RT 191-192.) The Intervenor argued that the project will contribute to cumulative impacts on state landfill capacity; however, they presented no evidence to refute the data submitted by SFEC and Staff.

4. Commission Discussion

SFEC's proposed mitigation measures comply with applicable law and ensure that no significant environmental impacts will result from the management and disposal of project-related waste. The Site Remediation Plan for handling contaminated soils found on site is discussed in the SOILS AND WATER RESOURCES section of this Decision. Implementation of the proposed mitigation measures, which are included in the Conditions of Certification, will ensure compliance with all applicable law.¹⁸⁴

FINDINGS AND CONCLUSIONS

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

¹⁸⁴ The Intervenor indicated concern that Staff did not review whether the landfills to be used by the project are in compliance with Title VI of the Civil Rights Act of 1964. (See the section on Environmental Justice in this Decision.) The Commission takes administrative notice that the landfills identified by SFEC presently operate under applicable state law. The wastes generated by the project will not require the siting and licensing of additional landfill operations.

1. Project construction and operation will produce hazardous and non-hazardous wastes.
2. To the extent feasible, SFEC will recycle much of the non-hazardous wastes.
3. The remaining non-hazardous wastes that are not recycled will be collected and transported to the City of San Francisco Solid Waste Transfer and Recycling Center for hauling to the Altamont Class II Landfill in Alameda County.
4. Much of the hazardous wastes, such as used oil and spent catalysts, will be removed by a licensed contractor for recycling.
5. Hazardous wastes, such as chemical wastes and cleaning solutions will be handled, stored, collected, transported, treated, and disposed at an appropriate California Class I Landfill in accordance with applicable law.
6. The amounts of hazardous and non-hazardous wastes generated during project construction and operation are minimal compared with existing disposal capacity at appropriate Class I and II Landfills, and therefore, will not cause significant adverse impacts to existing landfill capacity.
7. Cumulative impacts resulting from the handling and disposal of project-related hazardous and non-hazardous wastes will be insignificant.
8. Hazardous and non-hazardous wastes generated during project construction and operation will be handled in an environmentally safe manner.
9. Implementation of the Site Remediation Plan described in the SOILS AND WATER RESOURCES section of this Decision will ensure that excavation and disposal of contaminated soil will be handled in conformance with applicable law.
10. Implementation of the Conditions of Certification will ensure that hazardous and non-hazardous project wastes will be managed in compliance with all applicable laws, ordinances, regulations, and standards as identified in APPENDIX: LORS 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 (DTSC) prior to generating any hazardous waste.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the California Energy Commission Compliance Project Manager (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 with which the project owner has a contract for such services.

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 San Francisco Department of Public Health and the CPM and Coalition a waste management plan for all hazardous and non-hazardous 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 San Francisco Department of Public Health and the CPM and Coalition for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation. The CPM will provide comments to the project owner within 15 days upon receipt of the plan (or a mutually agreed upon date). The project owner shall submit any required revisions within 30 days of notification by the CPM (or mutually agreed upon date). The CPM shall notify the project owner regarding approval of the revisions within 15 days of receipt of the revised documents.

In the Annual Compliance Reports, the project owner shall document how actual waste management methods compared to planned management methods during the year.

WASTE-4 The project owner shall contact Region 2 of the Department of Toxic Substances Control (DTSC) to obtain oversight for remediation activities which shall take place under the auspices of DTSC's voluntary clean-up process. The project owner shall ensure that these activities are coordinated with the San Francisco Bay Regional Water Quality Control Board (the Board) and the San Francisco Department of Public Health. The remediation activities shall include preparation

of a health and safety plan which will ensure that off-site migration of contaminants is minimized for all pathways.

Verification: At least 90 days prior to the beginning of construction, the project owner shall notify the CPM in writing that DTSC Region 2 and the Board have been contacted and have agreed to provide oversight for any remediation activities which may be required at the site. The project owner shall provide copies of all documents and plans required by DTSC Region 2 to the CPM for review and approval.

TRANSMISSION LINE SAFETY AND NUISANCE

The transmission line interconnecting the proposed project to the existing transmission grid must be designed, constructed, and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. Issues include aviation safety, communications interference, fire safety, audible noise, hazardous and nuisance shocks, and electric and magnetic field levels.

1. Setting.

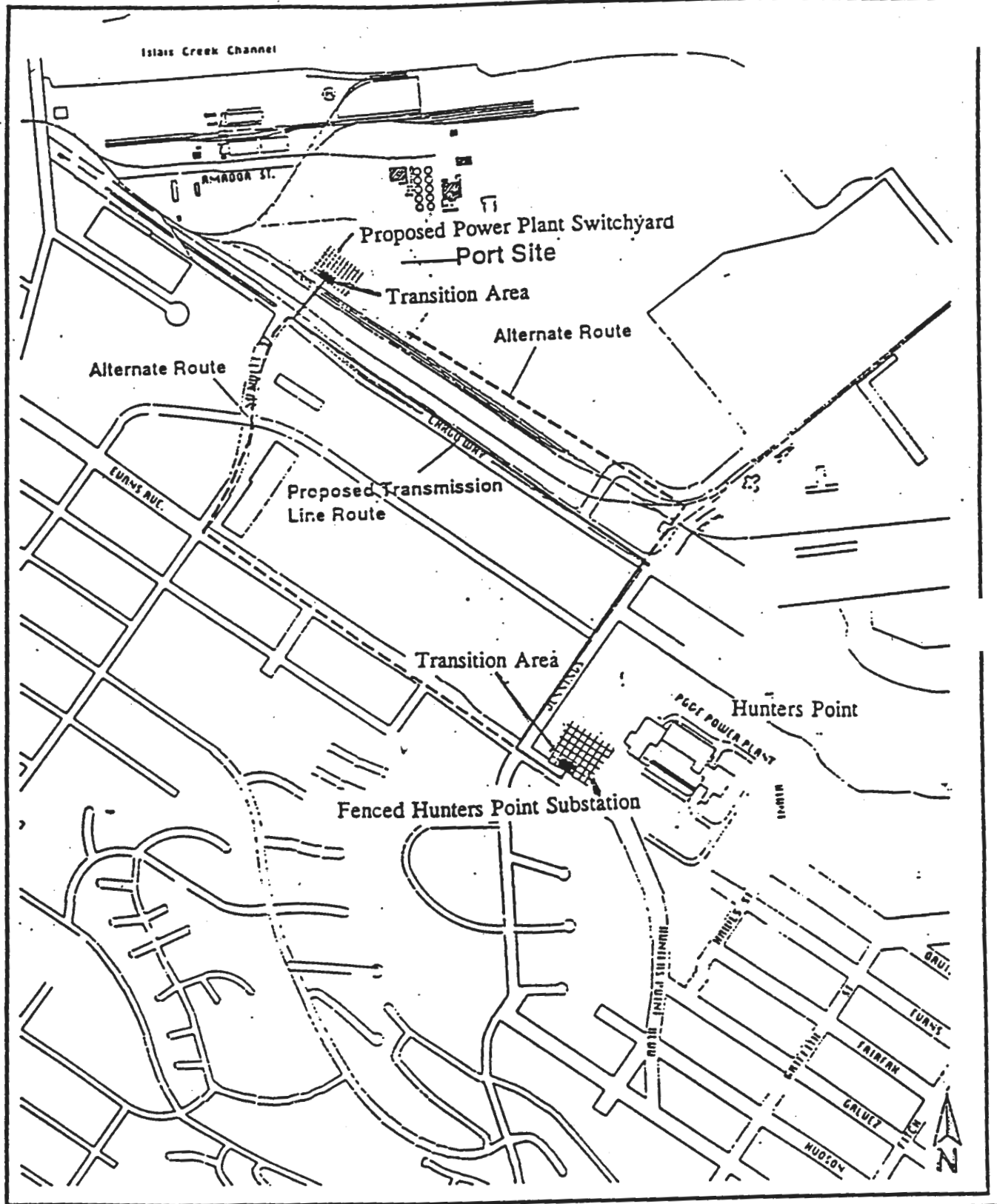
The proposed underground transmission line will run southeast along Cargo Way, to Jennings Street, turn southwest to Hunters Point Boulevard., and then turn southeast following Hunters Point Boulevard. until it reaches the Hunters Point substation. The route is located within a area zoned for industrial uses. The nearest sensitive receptors include the businesses along the route and the residences about 1/2 mile south of the site, as well as the Head Start Center and Sojourner Truth Day Care Center about 3/4 mile south of the site. (Staff's TLSN Supplemental Testimony filed July 5, 1995, p. 2; 7/13/95 RT 4.) TLSN FIGURE 1 shows the proposed transmission line route. (See also TSE FIGURE 2 in this Decision.)

2. Potential Impacts.

Transmission facilities may directly or indirectly create safety or nuisance impacts. The height and proximity of transmission equipment can theoretically interfere with the flight patterns of nearby military and public use air fields, creating aviation safety hazards. The voltage of transmission equipment can cause interference with radio, telephone, and television reception. Audible noise can be generated by overhead transmission lines, switchyards, substations, or other transmission equipment. The operation of transmission facilities can create the potential for both hazardous and nuisance shocks. The electric and magnetic fields associated with transmission facilities may be of concern to the public because of possible shock hazards and health effects. (FSA, Vol. II, pp. 138-139.)

TLSN FIGURE 1

Location of Underground Transmission Lines - Port Site



(Source: FSA, TLSN Supp. Test., p. 3.)

3. Summary of Evidence and Proposed Mitigation.

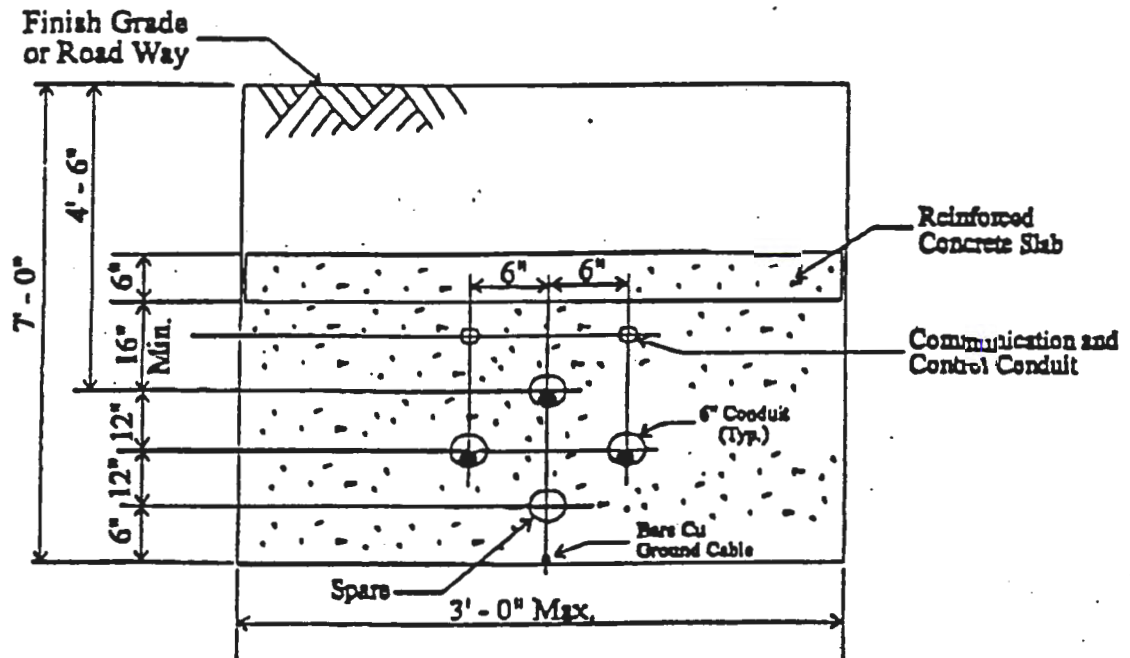
The evidence submitted by Applicant and Staff establishes that the transmission line associated with this project will not cause any impacts associated with aviation safety, fire hazards, audible noise, hazardous shocks, or nuisance shocks because the line will be installed underground. Potential communications interference will be mitigated by appropriate design methods. Electric field levels from the underground line will be very low or non-existent. Magnetic field reduction techniques and good engineering practices will significantly reduce public exposure to this potential concern.

Aviation Safety. The proposed underground 115 kV transmission line will have no impact on aviation safety. (FSA, Vol. II, p. 139.) The transition equipment at the switchyard and substation is below minimum height standards for structures near airports and thus poses no risk to aviation. (*Ibid.*)

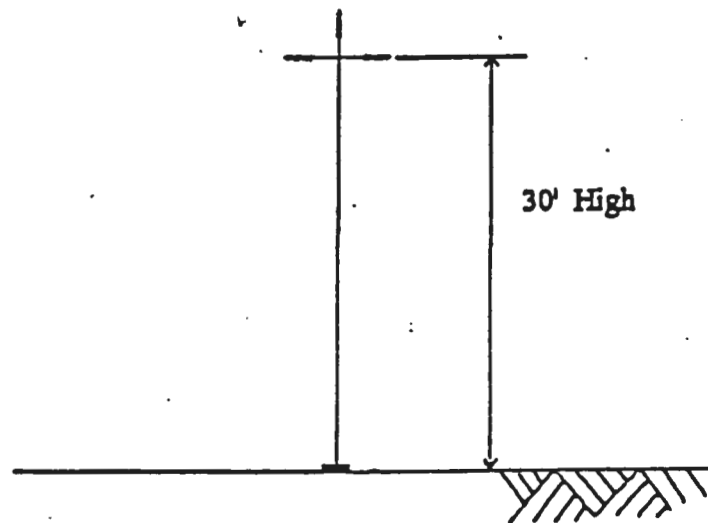
Fire Hazards. The 115 kV underground line will consist of a solid dielectric cable installed in plastic conduit, which poses an insignificant or non-existent fire hazard. (*Ibid.*; TLSN Supp. Test., p. 1.) See, TLSN FIGURE 2. In the event of an earthquake, powerful seismic forces could subject the underground conduit to longitudinal and lateral shaking, causing the cables to rupture. This may create an electrical fault if the line is energized and electricity could be released in the form of an arc. It is most likely, however, that any seismic forces sufficient to cause rupture of the cables would also trigger a shutdown of the power system within milliseconds, thus removing energy from transmission circuits. (FSA, Vol. II, p. 140.)

The evidence also indicates that natural gas pipelines are present along the underground transmission line route, creating a slight potential for fire involving natural gas. (*Ibid.*) The plastic conduit enclosing the transmission cable could slightly increase this potential in the event of gas rupture, but the expert testimony of record concludes that the risk of fire hazard is insignificant. (*Ibid.*)

TLSN FIGURE 2
Transmission Configurations



SOLID DIELECTRIC POWER CABLES



TYPICAL OVERHEAD TRANSMISSION LINE

Note: Sketches are not to scale.

Audible Noise. Since the transmission line will be underground and the substation and switchyard equipment will not produce noise, there will no audible impacts associated with transmission facility operation. (FSA, Vol. I, p. 141.)

Hazardous Shocks. Hazardous shocks may arise from direct contact with energized conductors of transmission facilities. State regulations establish standards to reduce the risk of exposure to hazardous shocks and to regulate safety aspects of transmission line construction. CPUC General Order (GO) 95 covers clearances, grounding, materials, maintenance, inspection, and other construction safety requirements for overhead lines. Title 8, California Code of Regulations, section 2700 covers construction, operation, and maintenance of electrical equipment. GO-128 covers the construction and safety requirements for underground supply and communications systems. (*Id.*, pp. 140-141.)

The evidence indicates that the transmission system is designed to comply with the applicable standards and, therefore, the potential for hazardous shocks due to direct contact with energized conductors is insignificant or non-existent. (*Id.*, p. 141.)

Nuisance Shocks. Nuisance shocks are non-hazardous, but unpleasant experiences, caused by electric currents below levels that are legally and medically recognized as likely to cause physiological harm. Nuisance shocks are a concern for overhead transmission lines because a current can be induced in a metallic object such as a fence; however, in this case, nuisance shocks are not likely to occur because the proposed line will be underground. (*Id.* p. 141.)

The transmission system is designed to comply with applicable standards on grounding of supply and communications conductors and equipment to prevent electric shocks. Therefore, according to the expert testimony of record, nuisance shocks associated with the proposed underground transmission line, switchyard, or transition equipment should not occur. (*Ibid.*)

Communications Interference. The operation of transmission facilities can interfere with radio and television reception. Interference is caused by two sources: 1) corona discharge; and 2) sparks between insulators, hardware, conductors, and other equipment. (*Id.*, pp. 141-142.)

Corona discharge is a partial breakdown of air where high voltage gradients occur. The underground line will not generate corona; and the voltage of the substation and switchyard equipment is below a level that could cause corona. (*Ibid.*)

Sparks are minimized by adherence to standard utility design methods. The underground line will not produce sparks. If sparks are discharged by switchyard equipment or transition equipment in the substation, they will be located and eliminated. (*Ibid.*) This mitigation requirement is included in a Condition of Certification.

Electric and Magnetic Fields. Electric and magnetic fields are created by electrically charged particles in the wire (conductor) of the transmission line. Voltage is the force that causes the charged particles to move. When voltage is applied to a conductor, an electric field is created in the space around the conductor. Electric field intensity is measured on a thousand volts per meter (kV/m) scale. (FSA, Vol. II, p. 142.)

An electric current is created by the movement of charged particles. When current flows in a transmission line or other conductor, it creates a magnetic field in the space around the conductor. The magnetic field intensity, usually measured one meter above ground, is expressed in milligauss (mG). (*Id.*, p. 143.)

Electric field intensity decreases rapidly with distance from transmission equipment, and is effectively shielded by large objects such as trees and houses. Magnetic field intensity also decreases with distance, but magnetic fields are not shielded by non-metallic objects. (*Ibid.*)

In this case, electric field strength levels for the underground transmission line will be insignificant because: 1) the electric field associated with the underground conductors will terminate on the metallic shield, which is an integral part of the cable; and 2) the cable shield will be grounded. In addition, the soil covering the cable will serve as a shield to contain electric fields. Therefore, electric fields outside the underground cable conduits will be minimal or non-existent. (*Id.*, p. 144.)

To minimize exposure to magnetic field levels from the underground transmission line, the parties agreed to several magnetic field reduction measures based on "good engineering techniques" developed by the investor-owned utilities in California.¹⁸⁵ (TLSN Supp. Test., p. 10.)

Magnetic field limits are not based on any established health effects but several states have developed policies regarding magnetic fields in an attempt to limit exposure to levels achievable with existing technology. (FSA, Vol. II, p. 157.) Florida has set a limit of 150 mG for 230 kV and smaller lines at the edge of the right-of-way. Since California does not specify limits, the parties in this case calculated potential magnetic fields in light of Florida's limit and concluded that the transmission line configuration described in this Decision is the best design for minimizing magnetic field exposure. (TLSN Supp. Test., p. 17.)

As shown in TLSN FIGURE 2, *ante*, the transmission line is designed in a trefoil configuration carrying 1200 Amperes at a depth of four and 1/2 feet. The magnetic field level at the edge of the right-of-way is calculated at 131 mG and 50 feet from the line is about 2.77 mG. TLSN TABLE 1 below compares alternative configurations:

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¹⁸⁵ CPUC Decision No. 93-11-013 requires that no-cost and low-cost measures be used by the investor-owned utilities to reduce magnetic field intensity levels associated with new and upgraded transmission facilities. (TLSN Supp. Test., p. 10.)

TLSN TABLE 1
Transmission Line Alternatives EMF Comparisons

Configuration	EMF Level at Fence Line (mG) ¹	EMF Level 50' from Center Line (mG) ²
Trefoil @ 4'6"	131	2.77
Right Angle @ 4'6"	149	2.87
Horizontal @ 4'6"	205	5.36
Trefoil @ 3'6"	169	2.78

¹ Calculated by SFEC and verified by Staff. ² Calculated by Staff.

(Source: TLSN Supp. Test., p. 17; TLSN Table 5.)

Staff concluded that the proposed transmission design will significantly reduce field intensity in areas of potential public exposure compared with an overhead design or standard horizontal underground configuration. (TLSN Supp. Test., p. 17.) Moreover, the underground transmission line is routed through the least populated areas to further reduce exposure. (*Ibid.*) SFEC will also conduct a survey of representational electromagnetic field measurements prior to construction and again after operation to confirm the original calculations. (*Ibid.*)

No other party offered evidence on this topic.

4. Commission Discussion.

The expert testimony indicates there will not be any significant safety or nuisance impacts associated with aviation safety, fire hazards, audible noise, hazardous shocks, nuisance shocks, communications interference, or electromagnetic fields. The Conditions of Certification incorporate measures to ensure that SFEC will comply with applicable law in the design and construction of the transmission line.

FINDINGS AND CONCLUSIONS

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

1. The proposed underground transmission line and associated facilities will not cause significant adverse impacts to public health or safety or cause nuisance in the areas of aviation safety, fire hazards, audible noise, hazardous shocks, nuisance shocks, communications interference, or electric and magnetic fields.
2. Electric field strength levels will be extremely low or non-existent because the electric field associated with the underground conductors will terminate on the grounded metallic cable shield.
3. Magnetic field reduction techniques have been followed in designing and locating the underground line so that the proposed trefoil configuration carrying 1200 Amperes at a depth of four and one-half feet along the least populated route is the most effective design for minimizing potential exposure to magnetic field intensity.
4. California law does not specify enforceable limits for magnetic fields associated with transmission lines.
5. Magnetic fields levels associated with the proposed transmission line are expected to be 131 mG at the edge of the right-of-way, and 2.77 mG 50 feet from the line.
6. Implementation of the Conditions of Certification set forth below will ensure that the proposed transmission facilities will be designed, constructed, and operated in compliance with all applicable laws, ordinances, regulations, and standards regarding transmission line safety and nuisance as identified in APPENDIX: LORS of this Decision.

CONDITIONS OF CERTIFICATION

- TLSN- 1** The San Francisco Energy Project transmission line shall be constructed in accordance with California Public Utilities Commission (CPUC) General Order (GO)-95 and GO-128; Title 8, California Code of Regulations; the National Electrical Safety Code and Institute of Electrical and Electronic Engineers (IEEE) Guide for Safety in AC Substation Grounding, American National Standards Institute/IEEE Standard 80-1986.

Verification: At least 30 days before the start of construction of the project transmission line, the project owner shall submit to the California Energy Commission Compliance Project Manager (CPM) a letter from the responsible electrical engineer, registered in the State of California, verifying transmission line compliance with the above regulations and standards.

TLSN-2 The project owner shall make every reasonable effort to locate and correct, on a case-by-case basis, all causes of radio and television interference attributed to the project's transmission line facilities. In addition to any necessary transmission line repairs, corrective action shall include, but shall not be limited to, adjusting or modifying receivers, adjusting, repairing, replacing or adding antennas, antenna signal amplifiers, filters, or lead-in cables.

Verification: The project owner shall maintain written records of all complaints of radio or television interference attributed to the transmission facilities and corrective actions taken in response to any such complaints. All complaints shall be recorded, in writing, and shall include explicit notations of the corrective actions performed. Complaints which do not result in corrective action being taken or in which there is no resolution shall be described and justified. The record shall be signed by the project owner representative and also by the complainant, if possible, to indicate concurrence with the corrective action or with the justification of no corrective action. All such records shall be kept in an on-site compliance file available for inspection by the CPM and a summary of complaint activities shall be included in the Annual Compliance Report.

TLSN-3 The project owner shall keep the powerplant switchyard and transition area (a transition area is a group of devices used to change an overhead line to an underground line or vice versa) free of waste material, rubbish and flammable material as required by Public Resources Code sections 4292-4296 and Title 14, California Code of Regulations sections 1250-1258.

Verification: Compliance will be verified by CPM site inspection.

TLSN-4 The project owner shall submit to the CPM and the Coalition a set of representative Electric and Magnetic Field (EMF) intensity measurements taken at various points near the project transmission facilities prior to the start of construction and at the same locations after energizing the lines. The first set of measurements (prior to the start of construction) shall be contained in the first EMF survey report and the second set of measurements (after energizing the line) shall be contained in the second EMF survey report.

Protocol:

The project owner shall engage a consultant approved by the CPM who shall recommend locations, subject to CPM approval and in consultation with the Coalition and make representative measurements of the electric and magnetic field intensity during typical loading. The consultant shall prepare the two EMF Survey Reports which cover the San Francisco underground line, the transition station, and the PG&E Hunters Point substation, as follows:

- along the underground transmission line centerline and 10 feet laterally from the centerline;
- on the perimeter of closest public access - near the project switchyard and the PG&E Hunters Point substation;
- in front of and behind specified businesses and residences along the transmission route: and,
- at known bus stops.

The CPM, in consultation with the Coalition, shall provide the project owner with a list of the minimum number of business and residential measurement locations. Each measurement shall include the date, time, transmission line loading(s) and voltage at the time of measurement, the distance from the centerline of the transmission line(s), street location, and any other information deemed pertinent to establishment of potential exposure levels. A sketch of the transmission line physical configuration and phase arrangement shall accompany the reports.

The results of the investigation shall be reported in the two EMF Survey Reports. In the event that a measured value is greater than the predicted value, an attempt shall be made to determine the reason.

Verification: The project owner shall file a copy of the first set of EMF measurements (in the first EMF Survey Report), with the CPM and Coalition, at least 10 days prior to the start of construction of the transmission lines. The post construction measurements shall be filed in the second EMF Survey Report, with the CPM and Coalition, within 60 days after synchronization of the transmission line.

TRANSMISSION SYSTEM ENGINEERING

This analysis reviews whether the project conforms with industry-accepted transmission system engineering (TSE) criteria and whether adequate transmission capacity in the existing PG&E system is available to accommodate the electricity generated by the project. (See, ER 92, p. 133.) ER 92 requires submission of an executed Special Facilities Agreement regarding project interconnection with the utility prior to certification. (*Ibid.*) The requirement for this agreement is fully discussed in the DEMAND CONFORMANCE section of this Decision.

1. Setting.

The transmission system on the San Francisco Peninsula, where the project is located, operates at 230 and 115 kilovolts (kV) and is connected to the greater PG&E system through 230 and 115 kV ties at the Martin substation. Power in the project area is generated by the PG&E-owned Hunters Point and Potrero powerplants and imported into San Francisco through the Martin substation. TSE FIGURE 1 shows the transmission system configuration in the project area. (FSA, Vol. II, pp. 106-107.)

Generating resources located on the peninsula must meet the PG&E San Francisco Planning Criteria.¹⁸⁶ (AFC, p. 2-7.) These criteria address the peninsula's special reliability needs, and require that sufficient generating resources be available to serve the peninsula's energy loads in the event of a severe power loss. (*Ibid.*) PG&E's San Francisco Operating Criterion requires that sufficient local generating resources be operating at any time to serve minimum generation requirements in the event of a major system disturbance. (FSA, Vol. II, p. 107.) Currently, the minimum generating requirements are set at 370 MW.¹⁸⁷ (*Ibid.*)

¹⁸⁶ The Planning Criteria were developed by PG&E and are not mandated by federal or state law.

¹⁸⁷ Both the Planning and Operating Criteria are discussed at length in the ALTERNATIVES section of this Decision.

2. Potential Impacts.

The SFEC project, as a new generating resource, could cause power overloads to the existing transmission system. However, the evidence does not indicate that the project is likely to adversely affect PG&E's generating or transmission outlet capabilities.

3. Summary of Evidence.

The project's transmission facilities include a new 115 kV switchyard and an underground 115 kV transmission line¹⁸⁸ that extends about 4,020 feet from the site to PG&E's Hunters Point substation; this is an existing substation with a 115 kV ring bus. (AFC, p. 3-80; Apr. 3, 1995 letter from SFEC.)

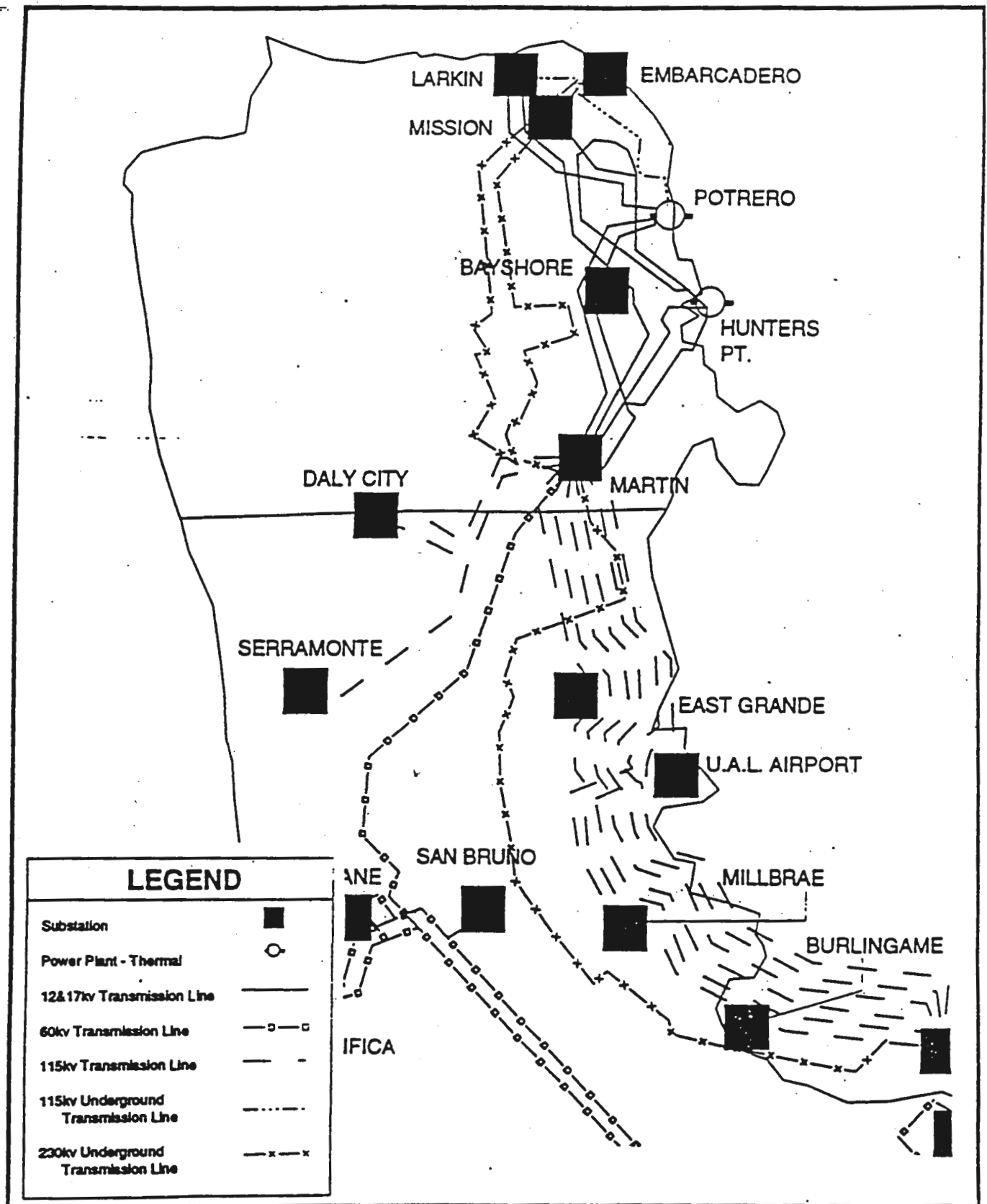
The project output will be 240 MW. To accommodate generation above the normal operating capacity of 240 MW, the step-up transformers will be sized at 315 megavolt amperes, which is the equivalent of about 283 MW at 0.9 power factor. The parties agree that the transformer is adequately sized to transfer the expected maximum power to the transmission circuit under normal conditions and to prevent overloads in emergency conditions. The project switchyard components therefore have sufficient ratings to accommodate all operating conditions. (FSA, Vol. II, p. 117; AFC, p. 3-80.) These components include:

- One 115/18 kV generator step-up transformer;
- One 115/13.8 kV generator step-up transformer;
- Two 115 kV power circuit breakers and disconnect switches;
- One 12.47/4.160 kV backup power transformer;
- One 13.8/4.160 kV auxiliary transformer;
- One termination structure with three terminations each;¹⁸⁹ and,
- Three lightning arresters. (FSA, Vol. II, p. 117.)

¹⁸⁸ SFEC proposed an underground transmission system instead of overhead transmission lines to minimize environmental impacts such as land use, visual, safety, and nuisance concerns. (AFC, p. 3-80.)

¹⁸⁹ Staff amended its TSE testimony in Supplemental Testimony filed at the July 13, 1995 Hearing. The testimony originally indicated "two" termination structures instead of "one." (See, 7/13/95 RT 4; TSE Supp. Test., p. 2.)

TSE FIGURE 1
Transmission System Configuration in the Project Area



(Source: FSA, Vol. II, p. 108, Figure TSE-2.)

The underground transmission system includes a three-phase single circuit cable system with one 2,500 thousand circular mil copper conductor for each phase.¹⁹⁰ At 115 kV, the power transfer capability of the underground circuit is 278 megavolt amperes at 0.9 power factor. This capability is adequate to transfer the project's 240 MW. Therefore, according to the expert testimony, the transmission line design conforms with the CPUC's General Order 128, "Rules for Construction of Underground Electric Supply and Communications Systems." (FSA, Vol. II, pp. 117, 123 [TSE Supp. Test., pp. 2-3]; AFC, p. 3-87.)

The interconnection is designed to meet PG&E's system reliability criteria and interconnection requirements.¹⁹¹ (AFC, p. 3-89; FSA, Vol. II, p. 119.) Interconnection facilities include new equipment and modifications to the substation as follows (AFC, Vol. II, p. 119):

- One 115 kV circuit breaker at the substation;
- Reconductor approximately 730 circuit feet of 1,000 thousand circular mil copper bus circuits;
- Install 115 kV suspension bus with 2,300 thousand circular mil all aluminum conductor;
- Install a new dead-end motor-operated switch and structure to terminate the project's transmission line; and
- Relocate the P1106 12 kV feeder outlet at the substation to avoid conflict with the project transition station.

¹⁹⁰ A thousand circular mil (kcmil) is a unit of the conductor's cross-sectional area, which is divided by 1,273 to obtain the area in square inches.

¹⁹¹ To meet the requirements of PG&E's Cogeneration and Small Power Production Interconnection Standards (Rule No. 21) and to help maintain voltage in the area, the project is required to have the capability of continuously maintaining a power factor between 0.9 lagging and .095 leading at any voltage level within five percent of 115 kV. (FSA, Vol. II, p. 121.) The expert testimony indicates that the project is designed to conform with PG&E's engineering and interconnection standards. (*Id.*, pp. 121-135.)

The 115 kV outlet capability of the Hunters Point substation is rated at 544 MW. Presently, the total generating capacity of the existing PG&E powerplants at Hunters Point is about 427 MW. With the SFEC project, the total would be 677 MW. As a result, about 133 MW could not be simultaneously scheduled. (FSA, Vol. II, p. 110.)

To ensure that total power production at Hunters Point will remain below 544 MW, PG&E's Power Plant Units 2 & 3 (214 MW) will not be operating whenever the SFEC (240 MW) project is generating power. The output increase from the substation's overall power flow would therefore be limited to about 36 MW (250 MW-214 MW), which is similar to the power flow when Plants 2 and 3 are operating and therefore considered minimal in the expert testimony. (*Ibid.*) See, TSE Table 1 below.

TSE TABLE 1
Hunters Point Power Plant Generating and Outlet Capabilities¹⁹²

Generating Capability		MW Outlet MW	
Power Plant Unit 1	50	PX-1	140
Power Plant Units 2 & 3	214	PX-2	144
Power Plant Unit 4	163	HP-1	130
SFEC Project	250	HP-3	130
TOTAL with SFEC Project	677	TOTAL	544
Existing Conditions	427		
Units 2 & 3 Off and Project On-line	463		

(Source: FSA, Vol. II, p. 110, TABLE TSE-1.)

Under normal operating conditions,¹⁹³ system losses will be reduced when the project is on-line. Since the project contributes about 36 MW to local generation, it would reduce imports into the peninsula. The project is, therefore, expected to result in some savings of system losses compared to importing power to the peninsula load centers. (FSA, Vol. II, p. 121.)

¹⁹² Existing conditions at the Hunters Point substation outlets show no overloads and that all system elements are within normal ratings under normal conditions. Operating outlets are labeled HP-1, HP-3, PX-1 and PX-2. Table TSE-1 shows outlet capability under existing conditions. With any one outlet circuit out of service, one of the other circuits may be expected to overload. The overloads that may occur are currently planned to be eliminated through operating measures such as transmission switching and/or generation reduction. The most severe overload is a loading of forty percent over normal for circuit PX-1. This overload may occur in the unlikely event that cable PX-2 is out of service, and Hunters Point Units 2, 3, and 4 are operating at maximum ratings. (FSA, Vol. II, p. 107.)

¹⁹³ Normal operation is when all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating. The normal operating scenario in this case is when the project is on-line and the Hunters Point Units 2 & 3 are not operating.

Staff recommended that SFEC be permitted to submit an executed Special Facilities Agreement with PG&E after certification but before construction because sufficient information has been provided and there are no significant, costly, or geographically remote improvements required of PG&E to accommodate the project. (TSE Supp. Test., p. 1, pp. 3-5.)

4. Commission Discussion.

The uncontroverted evidence of record, as amended by Staff in its TSE Supplemental Testimony, indicates that the project conforms with the relevant engineering criteria for transmission system engineering and interconnection, and that adequate capacity is available to accommodate the power generated by the project. The Commission will allow SFEC to submit an executed Special Facilities Agreement with PG&E after certification but within 30 days prior to the start of construction because sufficient information about the interconnection has been provided and there are no significant improvements necessary to accommodate the project. The Conditions of Certification incorporate the design and contract requirements to ensure compliance.

FINDINGS AND CONCLUSIONS

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

1. The proposed 115 kV transmission line is designed as an underground facility to minimize potential environmental concerns such as land use, visual, safety, and nuisance factors.
2. The electrical transmission facilities associated with the project conform with industry-accepted transmission system engineering and interconnection standards.
3. The project's interconnection to the Hunters Point substation is designed to meet PG&E's system reliability criteria and interconnection requirements.
4. The existing PG&E system has adequate transmission capacity to accommodate the electricity generated by the project.

5. Normal operating conditions will occur whenever the SFEC project is on-line and PG&E's at Hunters Point Units Nos. 2 and 3 are not operating to ensure that power output remains within the 544 MW outlet capability of the Hunters Point substation.
6. SFEC may file an executed Special Facilities Agreement with PG&E after certification but within 30 days prior to the start of construction because sufficient information about the interconnection exists in the record and there are no significant interconnection improvements necessary to accommodate the project.
7. The Conditions of Certification ensure that the project will conform with the applicable design and interconnection requirements.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall not begin construction until the Special Facilities Agreement has been executed.

Verification: No later than 30 days prior to the start of construction, the project owner shall provide copies of the executed Special Facilities Agreement to the California Energy Commission's Compliance Project Manager (CPM).

TSE-2 The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to the requirements a. through f. listed below.

a. The switchyard will include two main power transformers. The transformers will be designed to carry 315 megavolt amperes. Transformer losses will be considered in the selection of the transformer;

b. The 115 kilovolt cables will form a single circuit (radial tie) exiting the switchyard and proceeding to a transition station to be located on Pacific Gas and Electric Company property at the Hunters Point substation. At that point the radial tie will interconnect to the existing Hunters point substation. The outlet route shall not substantially deviate from the approved corridor route;

c. The underground cable will be one 2,500 thousand circular mil solid dielectric cable. The cable will have a normal capacity of 278 megavolt amperes;

d. The transmission facilities shall meet or exceed the requirements of California Public Utility Commission General Order 128;

e. The Interconnection facilities shall be designed, operated, and maintained in accordance with the Pacific Gas and Electric Company Special Facilities Agreement; and,

f. No other generating unit or transmission circuit may be connected to the project switchyard or outlets without prior authorization of the California Energy Commission Compliance Program Manager (CPM).

Verification: No later than 60 days prior to planned construction of the 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 2a, 2b and 2c above.

TSE-3 The project owner shall inform the CPM of any impending changes which may not conform to the TSE-2 requirements and request approval to implement such changes.

Verification: No later than 30 days prior to planned construction of transmission facilities, the project owner shall inform the CPM of any impending changes which may not conform to TSE-2 requirements and request approval to implement such changes. A detailed description of the proposed changes and complete engineering, environmental, and economic rationale for the changes shall accompany the request. No changes shall be made without written approval of the CPM.

TSE-4 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 California Public Utility Commission General Order 128 and Pacific Gas and Electric Company criteria. 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 following first successful 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 California Public Utility Commission General Order 128 and Pacific Gas and Electric Company criteria shall be concurrently provided.

MISCELLANEOUS FINDINGS

Community Benefits Package

Although SFEC's commitment to offer a community benefits package is voluntary and not as mitigation for an established impact, the Commission views the community benefits package as essential in its determination in the ENVIRONMENTAL JUSTICE section that the project benefits outweigh the project burdens. To memorialize SFEC's commitment in this Decision, the Commission makes the following findings:

1. San Francisco Energy Company has committed to establishment of a community benefit fund in the total amount of approximately \$13 million, funded over the first 17 years of the operation of the facility.
2. San Francisco Energy Company has committed to the establishment of an open membership, community-based organization to make recommendations for the disbursement of the fund for the benefit of the Bayview Hunters Point community.
3. San Francisco Energy Company's commitments to creation of the community benefit fund and establishment of an open-membership, community based organization to make recommendations for disbursement of the fund are conditional for the Commission's determination that the project's benefits outweigh its burdens as to the Bayview Hunters Point community.

Project On-Line Date

As discussed in the DEMAND CONFORMANCE and ALTERNATIVES sections, PG&E's 1993 Biennial Resource Plan Update bid specifications require the facility to be on-line by June 1, 1997. Based upon the evidence of record, there is a reliability-based physical need for the facility to be operational prior to Hunters Point Units 2 and 3 being placed in long term reserve as of December 31, 2000. Prior to 2001, there is an economic need for the facility. While the Commission believes there will be an economic benefit to PG&E's ratepayers from the deployment of the facility beginning in 1997, the Commission also believes that there is no compelling public need for a 1997 on-line date. Therefore, the Commission makes the following finding:

1. There is no compelling public need for the facility to be on-line by June 1997 in accordance with the bid specifications of PG&E's 1993 Biennial Resource Plan Update auction.

COMPLIANCE

The California Energy Commission has been certifying and monitoring compliance of new powerplants for 20 years and has developed a refined and sophisticated process for compliance monitoring. This process has proven to be effective in ensuring that all approved powerplant projects, regardless of type, size, or location, are designed, constructed, and operated in the manner proposed and that all proposed mitigation is carried out as intended.

This has been accomplished through the combination of thorough conditions and methods of verification, periodic Staff site visits and inspections, and additional site visits and inspections by delegated local agencies. The informal dispute resolution procedure has worked in the past to the satisfaction of members of the public, developers and other agencies.

COMPLIANCE PLAN AND MONITORING PROGRAM

The San Francisco Energy Company project Compliance Plan and Monitoring Program (Compliance Plan) has been established as required by Public Resources Code section 25532. The Plan provides a means for assuring that the facility is constructed and operated in conjunction with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the Commission and specified in the written Decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of three elements:

- (1) **General compliance conditions** beginning in this section which: set forth and explain the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others; set forth the requirements for handling confidential records and maintaining the compliance record; state procedures for settling disputes and making post certification changes and state the procedures for verification, including periodic reports and any other administrative procedures that are necessary to verify that all the conditions will be satisfied; and
- (2) **Specific Conditions of Certification** which are found following each technical area and contain all certification requirements including the measures required to mitigate any and all potential adverse project impacts to an insignificant level.

Each Condition of Certification also includes a verification provision which describes the method of verifying that the condition has been satisfied.

- (3) Special Compliance Procedures, explained below, which will inform and involve the local community concerning various aspects of the project's design, construction, and operation.

Special Compliance Procedures

Prior to the start of construction, the project owner shall submit to the Commission's Compliance Project Manager (CPM) for review a program for communication to the local community regarding progress in the construction (and, as appropriate, operation) of the project and opportunities for community feedback regarding these activities. The project owner's program shall remain in effect throughout the periods of construction and operation of the project and shall include the following elements:

- A commitment by the project owner to participate with local business groups in promoting commercial opportunities for local merchants in connection with the project;
- Publication by the project owner in the *New Bayview, Potrero View, and San Francisco Independent* a report of the status of project construction activities and activities planned for the near future; publication shall be at a frequency established by the project owner with the concurrence of the CPM;
- Publicly-noticed evening meetings in the local community by the project owner to provide a more detailed discussion of project activities, discuss community concerns/complaints, and respond to questions. Such meetings shall be at a frequency determined by the project owner to be appropriate to the level of the construction activity;
- Publication by the project owner of telephone numbers for public complaints both to the project owner and to the CPM, and a commitment by the project owner to provide a response within 48 hours, with a report of those complaints and responses provided to the CPM in a monthly status report;
- As provided for in the Memorandum of Understanding between the Bayview Hunters Point Clean Environmental Coalition and San Francisco Energy Company (August 24, 1995), the project owners shall establish a program and policies for preferential local hiring and local purchase of goods and services to the extent consistent with state and federal law as follows:
 - In cooperation with the Building Trade Unions, initiate a preference program to hire qualified Bayview Hunters Point community union

construction workers and to implement an apprentice program for local workers.

- Initiate a screening and preference program to hire qualified local operations and maintenance personnel.
- Institute a clearinghouse for goods and services used by the facilities that may be available in the Bayview Hunters Point community.
- Establish a program to inform local merchants and service providers how to take advantage of the local preference policies.

The Bayview Hunters Point Clean Environment Coalition (Coalition) Responsibilities

A. Purpose

The Coalition, in consultation with the CPM, will review plans, reports, etc., submitted by the project owners to the Commission pursuant to the conditions of certification.

The Coalition may initiate or receive inquiries regarding compliance with the conditions of compliance, certification, or any other matter relating to the construction or operation of the project. The Commission shall undertake any necessary and appropriate investigation and respond to any inquiry within 14 calendar days of receipt of the inquiry or complaint. The response shall include but not be limited to the following:

1. A description of the inquiry or complaint;
2. A statement of the steps taken to investigate the inquiry or complaint;
3. A listing of the person or persons responsible for responding to the inquiry or complaint;
4. A determination of the validity of the inquiry or complaint and the reasons therefore;
5. What further time or additional investigation is required, if any, to determine the validity of the inquiry or complaint;
6. The proposed remedies, if any, to respond to the inquiry or complaint;

7. The date by which any remedies shall be instituted or implemented; and,
8. The party or parties who shall be responsible for instituting or implementing the remedies.

The Commission may incorporate any relevant material or response offered by the project owners to an inquiry, but incorporating any such material or response shall not relieve the Commission of any responsibility to make an independent investigation as described herein above.

The Coalition will serve as a clearinghouse (i.e., information dissemination) for preferential local hiring and purchase of services and materials as prescribed by the "Special Compliance Procedure" of the Compliance Plan and Monitoring Program.

The Coalition shall have no enforcement powers, but may advise the Commission or other agencies that have jurisdiction over the project that it does not find the response to an inquiry sufficient or adequate. In the event that the Commission finds a response insufficient or inadequate, it may request a further response from the appropriate agency. Said agency shall provide a further response in not less than 14 calendar days after such a request is received by the agency.

Independent of the above procedures, the Coalition may file a complaint as prescribed by California Code of Regulations, title 20, section 1230 Article 4 "Complaints and Investigations".

The Coalition shall determine its form of organization which may include but is not limited to: an association, a non-profit corporation, or other form of legal entity. The Special Compliance Procedures are not mandatory as to the Coalition. The Coalition may petition in writing to the Commission to be permanently relieved of any or all responsibilities pursuant to the Special Compliance Procedures or to be disbanded.

The project owner, the CPM, or any other agency may, for cause, petition the Commission to limit the responsibilities of the Coalition.

B. Payment of Administrative Costs

Reasonable administrative/clerical costs (i.e., agenda preparation, mailing of meeting notices, minutes) to be borne by the project owners as prescribed in the Special Compliance Procedure of the Compliance Plan and Monitoring Program.

C. Responsibilities of the Commission and the Project Owner

Commission. The Commission has primary compliance monitoring and enforcement responsibility as outlined in the Compliance Plan and Monitoring Program. Interaction with the Coalition is part of the informal dispute resolution procedures.

Project Owner. The project owner will be responsible for providing information, as prescribed by the Special Compliance Procedures of the Compliance Plan and Monitoring Program to the Coalition regarding local hiring and purchase of goods and services. The project owner will work with the Coalition to establish any policies and/or program to the extent required by the Commission's Conditions of Certification. The project owner will coordinate with the Coalition for at least a quarterly on-sight visit and will provide reasonable access to data and files. The project owner will be required to respond to requests of the Coalition within two working days of receipt of the request.

The project owner will be responsible for providing information to the Coalition regarding local hiring and purchase of goods and services as prescribed by the Special Compliance Procedures of the Compliance Plan and Monitoring Program. The project owner will work with the Coalition to establish any policies and/or program to the extent required by the Commission's Conditions of Certifications. The project owner will coordinate with the Coalition for at least one quarterly on-sight visit and will provide reasonable access to data and files. The project owner will be required to respond to requests of the Coalition within two working days of receipt of the request.

D. Conduct of Meetings

Meetings to be called as deemed necessary by the Coalition pursuant to the procedures outlined in the Brown Act.

Notice will be provided to the members of the and to other community members who have requested to be on the Coalition's and Commission's mailing lists.

The Coalition may select a Chair and Vice-Chair, and may establish rules of procedure for the conduct of the meetings.

All meetings shall be open to the public and shall be held within the Bayview Hunters community to the extent feasible.

GENERAL COMPLIANCE CONDITIONS

I. Compliance Project Manager Responsibilities

A. 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's Decision;
- 2) Resolving complaints;
- 3) Processing post-certification changes to the Conditions of Certification and project description;
- 4) Documenting and tracking compliance filings; and,
- 5) Ensuring that the compliance files are maintained and accessible.

The CPM works under the general direction of the Deputy Director of the Energy Facilities Siting and Environmental Protection Division and will consult with the appropriate responsible agencies and Commission management when resolving disputes and complaints and processing amendments.

B. Pre-Construction and Pre-Operation Compliance Meeting

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

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

- 1) All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

- 2) All monthly and annual compliance reports filed by the project owner;
- 3) All complaints of noncompliance filed with the Commission; and,
- 4) All petitions for project or condition changes and the resulting Staff or Commission action taken.

II. 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 San Francisco Energy Company (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 Commission certification, or other action as appropriate.

A. Access

The CPM, designated staff, and delegated agencies or consultants, shall be guaranteed and granted unrestricted access to the powerplant site, related facilities, project-related staff, and the records maintained on-site for the purpose of conducting audits, surveys, inspections, or general site visits.

B. Compliance Record

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

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

C. Compliance Verifications

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved Condition(s) of**

Certification by condition number and include a brief description of the subject of the submittal. The project owner shall also identify those submittals **not** required by a Condition of Certification with a statement such as: "This submittal is for information only and is not required by a specific Condition of Certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

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

All submittals shall be addressed as follows:

**Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814**

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

Each Condition of Certification is followed by a means of verification. The verification describes the Commissions'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 without full Commission approval.

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

- 1) Reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific Conditions of Certification;
- 2) Appropriate letters from delegate agencies verifying compliance;
- 3) Commission staff audit of project records; and,
- 4) Commission staff inspection of mitigation and/or other evidence of mitigation.

D. Compliance Reporting

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

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

- 1) The technical area;
- 2) The condition number;
- 3) A brief description of the verification action or submittal required by the condition;
- 4) The date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
- 5) The expected or actual submittal date;
- 6) The date approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable; and
- 7) An indication of the compliance status for each condition; i.e., not started, in progress, late, on schedule, or completed (date).

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

E. 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. Reporting outside the monthly framework, if required by

specific Conditions of Certification, is not precluded. Monthly Compliance Reports shall be numbered consecutively, and contain at a minimum:

- 1) A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
- 2) Documents and submittals required as verification of conditions (these must be identified in the transmittal letter);
- 3) An updated compliance matrix including the status of each condition; i.e., not started, in progress, late, on schedule or completed;
- 4) A list of compliance requirements completed during the reporting period;
- 5) A list of any submittal deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;
- 6) A cumulative listing of any changes to compliance activities which have resulted from negotiations between the project owner and the Commission or its delegate agencies (Note: changes to conditions, verifications, or other terms of compliance must be approved by either the Commission or CPM prior to implementation);
- 7) A monthly listing of any filings or permits issued by other governmental agencies;
- 8) A projection of project compliance activities scheduled during the next two months;
- 9) A listing of the month's additions to the on-site compliance file; and
- 10) Any requests to dispose of items that are required to be maintained in the project owner's compliance file.

The first Monthly Compliance Report is due in the first month following Commission approval of the project. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events Table at the end of this Plan.

F. Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each calendar year of commercial operation and are due to the CPM by February 15th of the year immediately following the reporting year. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by the CPM. This does not preclude reporting outside the annual report framework if required by specific conditions. Each Annual Compliance Report shall be identified by year and shall contain the following:

- 1) An updated compliance matrix;
- 2) A summary of the current project operating status and explanation of any significant changes to facility operations;
- 3) Documents and submittals required as verification of conditions (these must be identified in the transmittal letter);
- 4) A cumulative listing of changes to the facility as a result of the Commission's post-certification change/amendment process;
- 5) An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
- 6) A listing of any filings made or permits issued by other governmental agencies during the year;
- 7) A projection of project compliance activities scheduled during the next year; and
- 8) A listing of the year's additions to the on-site compliance file.

G. Confidential Information

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

H. Facility Closure

The project owner shall file a closure plan for consideration and approval by the Commission at least 12 months prior to commencing closure activities. The plan shall describe actions to be taken to meet Conditions of Certification and all applicable laws, ordinances, regulations and standards and any local and regional plans in existence at the time of facility closure for the powerplant, the site, fill areas, access roads, equipment, buildings, and other related facilities constructed as part of the project.

Closure activities shall not commence until Commission approval of the closure plan is granted. The project owner shall comply with the approved closure plan and any conditions of closure established by the Commission.

IV. Delegate Agencies

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

In performing construction and operation monitoring of the project, the Commission staff acts as and has the authority of the 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.

V. Noncompliance

Any person or agency may file a complaint alleging noncompliance with the Conditions of Certification. Such a complaint will be subject to review by the Commission pursuant

to Title 20, California Code of Regulations section 1230 et seq., but in many instances the noncompliance can be resolved by the procedure described in Section VII.

VI. Enforcement

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

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

VII. Informal Dispute Resolution Procedure

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

The procedure usually precedes the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations section 1230 et seq., but is not intended to be a substitute for, or prerequisite to it. The informal procedure may not be used to change the terms and Conditions of Certification as approved by the Commission.

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

A. Request for Informal Investigation

Any individual, group, or agency may request the Commission to conduct an informal investigation of an alleged noncompliance with the Commission's terms

and Conditions of Certification. All requests for an informal investigation shall be made to the designated CPM.

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

B. Request for Informal Meeting

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

- 1) Immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
- 2) Secure the attendance of appropriate Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;
- 3) Conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and,
- 4) After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process provided under Title 20, California Code of Regulations section 1230 et seq.

VIII. Formal Dispute Resolution Procedure

If either the project owner, Commission staff, or the party requesting an investigation is not satisfied with the results of said informal meeting, such party may file a complaint or a request for an investigation with the Commission's General Counsel. Disputes may pertain to actions or decisions made by any party including the Commission's delegate agents.

The responsible Committee or 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 (Cal. Code Regs., tit. 20, § 1232.)

IX. Post Certification Changes to the Commission Decision

The project owner must petition the Commission, pursuant to Title 20, California Code of Regulations section 1769, if it proposes to 1) delete or change a Condition of Certification; 2) modify the project design or operational or performance requirements; or 3) transfer ownership or operational control of this facility.

KEY EVENT LIST

PROJECT _____ DATE ENTERED _____

DOCKET NUMBER _____ PROJECT MANAGER _____

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

***APPENDIX: CHRONOLOGICAL
HISTORY***

***Workshop
and
Hearing
Summary***

SAN FRANCISCO WORKSHOP & HEARING SUMMARY

SAN FRANCISCO

Workshops Held

MORNINGS = 10

EVENINGS = 12

Hearings

MORNINGS = 10

EVENINGS = 3

TOTALS = 35

SACRAMENTO

Workshops Held

MORNINGS = 1

EVENINGS = 0

Hearings

MORNINGS = 5

EVENINGS = 0

TOTALS = 6

SAN FRANCISCO PROJECT 94-AFC-1 WORKSHOP SCHEDULE

DATE	TIME	LOCATION	TOPICS
Sept. 12	10:00 a.m. - 4:00 p.m	State of California Office Building 455 Golden Gate Ave. Room 1200 San Francisco, CA	<i>(Hearing)</i> Air Quality and Site Remediation
August 22	10:00 a.m. - 4:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1200 San Francisco, CA	Air Quality and Site Remediation
July 21	10:00 a.m. - 6:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	<i>(Hearing)</i> Public Health and Applicant Witnesses
July 20	10:00 a.m. - 6:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1158 San Francisco, CA	<i>(Hearing)</i> Air Quality and Public Health
July 19	10:00 a.m. - 6:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	<i>(Hearing)</i> Air Quality
July 18	10:00 p.m. - 6:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	<i>(Hearing)</i> Alternatives, Industrial Safety and Fire, Efficiency, and applicant Witness
July 17	10:00 a.m. - 6:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	<i>(Hearing)</i> Alternatives
July 14	9:30 a.m. - 6:00 p.m.	California Energy Commission Hearing Room A 1516 Ninth Street Sacramento, CA	<i>(Hearing)</i> Socioeconomics and Land Use

SAN FRANCISCO PROJEC. 94-AFC-1 WORKSHOP SCHEDULE

DATE	TIME	LOCATION	TOPICS
July 13	9:30 a.m. - 6:00 p.m.	California Energy Commission Hearing Room A 1516 Ninth Street Sacramento, CA	<i>(Hearing)</i> Facility Design, Soils/Water Resources, Geo. Hazards, Waste Management, Hazardous Materials and Intervenor witnesses
July 12	1:00 p.m. - 6:00 p.m.	California Energy Commission Hearing Room A 1516 Ninth Street Sacramento, CA	<i>(Hearing)</i> Noise, Transmission System Engineering, and Transmission Line Safety and Nuisance
July 11	10:00 a.m. - 6:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	<i>(Hearing)</i> Declarations, Environmental Justice, Visual Resources, and Intervenor Witnesses
July 7	9:30 a.m. - 5:00 p.m.	California Energy Commission Hearing Room A 1516 Ninth Street Sacramento, CA	<i>(Hearing)</i> Demand Conformance
July 6	9:30 a.m. - 6:00 p.m.	California Energy Commission Hearing Room A 1516 Ninth Street Sacramento, CA	<i>(Hearing)</i> Project Description, Demand Conformance and Administrative/Procedural Matters
June 21	10:00 a.m. - 4:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1202 San Francisco, CA	<i>(Hearing)</i> FSA, PM10, socio and seismic issues
June 9	10:00 a.m. - 5:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	<i>(Hearing)</i> Prehearing conference
June 2	10:00 a.m. - 5:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	PSA wrap-up

SAN FRANCISCO PROJECT 94-AFC-1 WORKSHOP SCHEDULE

DATE	TIME	LOCATION	TOPICS
May 23	6:00 p.m. - 9:00 p.m.	South East Community Center Community Room, Lower Level 1800 Oakdale Ave. San Francisco, CA	Cultural, Paleontological Resources and Biological Resources
May 19	10:00 a.m. - 4:00 p.m.	San Francisco Building Department 1660 Mission Street, Room 2001 San Francisco, CA	Facility Design, Efficiency and Reliability, Geological Hazards, Transmission Line Safety and Nuisance, and transmission Systems Engineering
May 19	6:00 p.m. - 9:00 p.m.	All Hallows Community Center 1601 Lane Street (Near Revere) San Francisco, CA	Facility Design, Efficiency and Reliability, Geological Hazards, Transmission Line Safety and Nuisance, and Transmission Systems Engineering
May 17	10:00 a.m. - 4:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1194 San Francisco, CA	Alternatives, Alternatives Data Responses and Elfin modeling
May 17	6:00 p.m. - 9:00 p.m.	Malcolm X Academy School 350 Harbor Road San Francisco, CA	Alternatives, Alternatives Data Responses and Elfin modeling
May 12	10:00 a.m. - 4:00 p.m.	Bay Area Air Quality Management District Board Room, 7th Floor 939 Ellis Street San Francisco, CA	Air Quality, Odor, and Public Health
May 12	6:00 p.m. - 9:00 p.m.	Malcolm X Academy 350 Harbor Road San Francisco, CA	Air Quality, Odor, and Public Health
May 11	10:00 a.m. - 4:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1200 San Francisco, CA	Hazardous Materials Management, Soil and Water Resources, Waste Management, and Industrial Safety & Fire Protection

SAN FRANCISCO PROJEC: 94-AFC-1 WORKSHOP SCHEDULE

DATE	TIME	LOCATION	TOPICS
May 11	6:00 p.m. - 9:00 p.m.	Malcolm X Academy 350 Harbor Road San Francisco, CA	Hazardous Materials Management, Soil and Water Resources, Waste Management, and Industrial Safety & Fire Protection
May 10	10:00 a.m. - 4:00 p.m.	State of California Office Building 455 Golden Gate Ave. Room 1200 San Francisco, CA	Land Use, Socioeconomics, Visual Resources, Traffic and Noise
May 10	6:00 p.m. - 9:00 p.m.	Malcolm X Academy 350 Harbor Road San Francisco, CA	Land Use, Socioeconomics, Visual Resources, Traffic and Noise
May 3 (if needed)	6:00 p.m. - 9:00 p.m.	South East Community Center Community Room, Lower Level 1800 Oakdale Ave. San Francisco, CA	Introduction to the Preliminary Staff Assessment, Need Conformance and Elfin Modeling as it Relates to Air Quality and Project Alternatives
May 2	6:00 p.m. - 9:00 p.m.	South East Community Center Community Room, Lower Level 1800 Oakdale Ave. San Francisco, CA	Introduction to the Preliminary Staff Assessment, Need Conformance and Elfin Modeling as it Relates to Air Quality and Project Alternatives
April 11	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Motion for Stay <i>Hearing</i>
February 16	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Data Request/Data Response
January 9	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Data Request/Data Response

SAN FRANCISCO PROJECT 94-AFC-1 WORKSHOP SCHEDULE

DATE	TIME	LOCATION	TOPICS
1994			
December 13	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	<i>Hearing</i> regarding Legal Issues Relating to CEQA
December 12	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Data Request/Data Response
December 5	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Data Request/Data Response
October 27	1:00 p.m. - 4:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Data Request/Data Response
October 27	6:00 p.m. - 7:30 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Summary of 1:00 meeting
October 11	2:00 p.m. - 4:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Informational <i>Hearing</i> and Site Visit
October 11	6:00 p.m. - 9:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	(<i>Hearing</i>) Repeat of 2:00 meeting
September 26	10:00 a.m. - 4:00 p.m.	South East Community Facility 1800 Oakdale Ave. (at Phelps Street) San Francisco, CA	Data Request Workshop
August 19	10:00 a.m. - 5:00 p.m.	California Energy Commission Hearing Room B 1516 9th Street Sacramento, CA	Data Adequacy Workshop

APPENDIX: POS

***Proof
of
Service
List***

STATE OF CALIFORNIA

State Energy Resources Conservation
and Development Commission

In the Matter of:	)	Docket No.: 94-AFC-1
	)	
Application for Certification	)	PROOF OF SERVICE
of the SAN FRANCISCO ENERGY	)	(rev. 6/15/95)
COMPANY'S COGENERATION Project (SFEC)	)	
_____	)	

PROOF OF SERVICE

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:

APPLICANT

Mr. Robert G. Morgan, Director
of Site Certification
San Francisco Energy Co.
44 Montgomery Street, Ste. 3450
San Francisco, CA 94104

Mr. Emilio E. Varanini, III
Marron, Reid & Sheehy
810 K Street, Ste. 2100
Sacramento, CA 95814-3521

INTERESTED AGENCIES

Mr. Robert S. Maerz
Deputy City Attorney
City & County of San Francisco
Port of San Francisco
3100 Ferry Building
San Francisco, CA 94111

INTERVENORS

Willie F. Carter, President
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Council, Inc.
216 West Point Road
San Francisco, CA 94124

Kerisimasi Faatuai, Vice President
Hunter's View Resident Management
Council, Inc.
229 West Point Road
San Francisco, CA 94124

Claude Wilson/Linda Richardson
c/o Morgan Heights Homeowners
Association
P.O. Box 880961
San Francisco, CA 94188-0961

Alan Ramo/Anne Eng
Golden Gate University
Environmental Law and Justice Clinic
536 Mission Street
San Francisco, CA 94105

Felipe M. Floresca
San Francisco Housing Authority
440 Turk Street
San Francisco, CA 94102

Paul Brown
Wendy Brummer-Kocks
Vivian Wiley
Innes Avenue Coalition
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San Francisco, CA 94124

Anne E. Simon, Esq., Director
Claudia Polsky/Brian Hebert
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Berkeley, CA 94705

Dr. Sandra R. Hernandez, M.D.
Dr. Larry Meredith, Ph.D.
San Francisco Department of
Public Health
101 Grove Street
San Francisco, CA 94102

Dr. Eddie C. Welbon
Bayview Hunter's Point Homeowners
& Residential Community
Development Council, Inc.
P.O. Box 24347
San Francisco, CA 94124

Theresa Coleman, President
Andre Williams, Member
Council of Resident Management
Corporations (CORMC) of San
Francisco, Inc., One Harbor Rd.
San Francisco, CA 94124

David Chatfield/Jane Gire
Kisha Animashoun
Greenpeace, 3rd Floor
568 Howard Street
San Francisco, CA 94105

Joel Ventresca
San Franciscans for Public Power
1278 44th Avenue
San Francisco, CA 94122

San Francisco Tomorrow
Jennifer Clary
54 Mint Street, #310
San Francisco, CA 94103-1815

S.F. Lesbian, Gay, Bisexual
Voter's Project
Margaret Verges
3041 Pine Street
San Francisco, CA 94115

Leon Thibeaux
82 Bayview Street
San Francisco, CA 94124

Mr. Samuel Murray
30 Van Ness Avenue, 5th Floor
San Francisco, CA 94105

Karen Huggins
District 7 Democratic Club
4909 Third Street
San Francisco, CA 94124

Mr. Alex Pitcher
61 Pomona Street
San Francisco, CA 94124

Mr. Olin Webb
SEJA (the "Association")
186 Maddux Avenue
San Francisco, CA 94124

Rev. John Phillips
Bayview Baptist Ministers
Fellowship
1636 Armstrong Street
San Francisco, CA 94124

Marie J. Franklin, President
Shoreview Tenant's Association
95 Beatrice Lane, Suite 03
San Francisco, CA 94124

James Richards
Aboriginal Blackman Unlimited
5048 3rd Street
San Francisco, CA 94124

CALIFORNIA ENERGY COMMISSION
(Docket Unit - 12 copies required)

Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814

Sy-Allen Browning
Young Community Developers, Inc.
1715 Yosemite Avenue
San Francisco, CA 94124

I declare that under penalty of perjury that the foregoing is true and correct.

(Signature)

* * * * *

INTERNAL DISTRIBUTION LIST

Parties do not mail to the following individuals. The Energy Commission Docket Unit will internally distribute documents filed in this case to the following:

Sally Rakow
Vice Chair and Presiding
Committee Member
1516 Ninth Street, MS-32
Sacramento, CA 95814

Charles R. Imbrecht
Chairman and Committee Member
1516 Ninth Street, MS-31
Sacramento, CA 95814

Garret Shean
Hearing Officer
1516 Ninth Street, MS-9
Sacramento, CA 95814

Shawn Pittard
Project Manager
1516 Ninth Street, MS-15
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Ed Heidig
Public Adviser
1516 Ninth Street, MS-12
Sacramento, CA 95814

Jeff Ogata
Office of General Counsel
1516 Ninth Street, MS-14
Sacramento, CA 95814

* * * * *

REPORTER (Commission Notices only)

CourtScribes
5207 Cold Springs Drive
Foresthill, CA 95631

***APPENDIX: LABOR
AGREEMENT***

May 24, 1995

Mr. Stan Smith
Secretary-Treasurer
San Francisco Building and
Construction Trades Council
2660 Newhall Street, Room 116
San Francisco, CA 94124-2527

Subject: Project Stabilization Agreement and
Agreement for Construction Employment Goals
San Francisco Energy Company

Dear Mr. Smith:

This letter agreement will confirm our understanding regarding the applicability of the Agreement for Construction Employment Goals and the Project Stabilization Agreement ("Agreements") in connection with the San Francisco Energy Company Cogeneration Facility ("Project"). Although the San Francisco Energy Company ("Owner") has not selected nor entered into a contract with the Engineering, Procurement and Construction Contractor ("EPC Contractor") to construct the Project, it is understood and agreed that these Agreements are acceptable to the San Francisco Building and Construction Trades Council ("Council"), and the Council's affiliated local unions ("Local Unions") who are signatory to the Agreements.

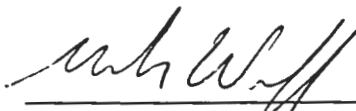
The Owner agrees that it will cause construction work covered by the Agreements to be contracted to an EPC Contractor who will be required to execute and be bound by the terms of the Agreements. In addition, the Council and Local Unions agree that other contractors may execute the Project Stabilization Agreement for purposes of covering such work on the Project by signing Attachment B ("Agreement To Be Bound"). The EPC Contractor shall monitor the compliance with the Agreements by all contractors, who by signing an Agreement To Be Bound, together with their subcontractors, shall have become bound to the Project Stabilization Agreement. Each of the parties hereto acknowledge that there is no employment or labor relationship, or any other contractual or legal relationship of any kind, other than as expressly set forth herein, between the Owner and either the Council, Local Unions or both.

Mr. Stan Smith
May 24, 1995
Page 2

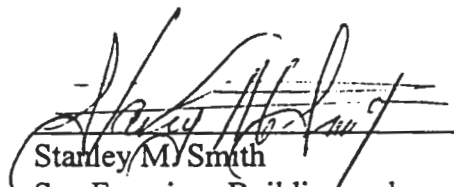
Owner also agrees that if the contractual arrangement between the Owner and the EPC Contractor is terminated for any reason, and the EPC Contractor is replaced, the Owner agrees that as a condition of award, any successor EPC Contractor will execute the Project Stabilization Agreement by signing an Agreement To Be Bound. By signing the Agreement To Be Bound the successor EPC Contractor will accept and undertake all the obligations, responsibilities and authority of the former EPC Contractor for implementation of the Agreements.

If this letter fairly and completely represents your understanding regarding the applicability of the Project Stabilization Agreement and the Agreement for Construction Employment Goals for the San Francisco Energy Company Cogeneration Facility, please sign in the space provided below.

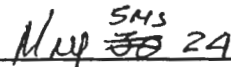
Sincerely,



Mark E. Woodruff
San Francisco Energy Company



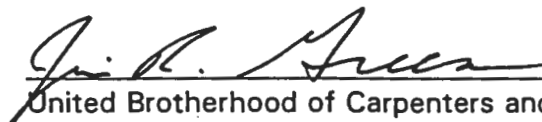
Stanley M. Smith
San Francisco Building and
Construction Trades Council

^{SMS}
_____, 1995
(Date)

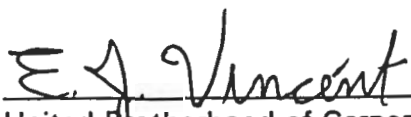
SIGNATORY UNIONS



Intl. Association of Heat and Frost
Insulators and Asbestos Workers, Local 16



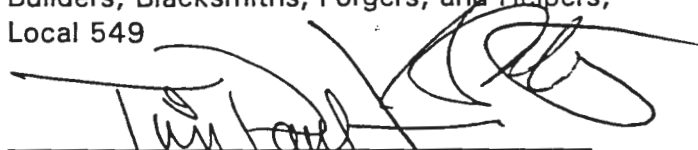
United Brotherhood of Carpenters and
Joiners of America-District Council 46
Northern Counties



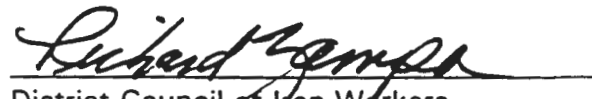
United Brotherhood of Carpenters and
Joiners of America-Millwright Local 102

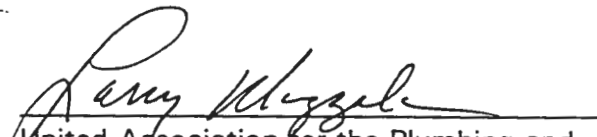

Cement Masons' Local 580 and
District Council of Northern
California

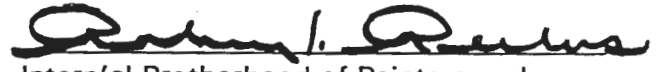

Int'l. Brotherhood of Boilermakers, Iron Ship
Builders, Blacksmiths, Forgers, and Helpers,
Local 549


Int'l. Union of Bricklayers and Allied
Craftsmen Local 3

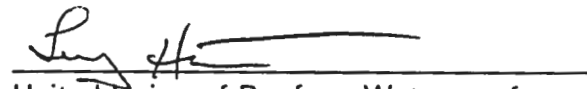
Intern'al Ass'n of Bridge, Structural and
Ornamental Iron Workers Local 377

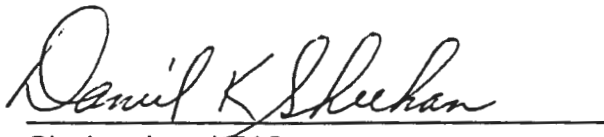

District Council of Iron Workers
State of California & Vicinity


United Association for the Plumbing and
Pipefitting Industry of the United States and
Canada, Local 38

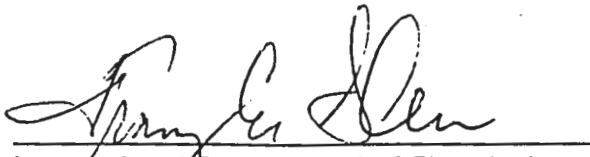

Intern'al Brotherhood of Painters and
Allied Trades, Local 4

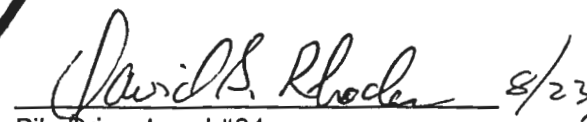

Carpet, Linoleum & Soft Tile Workers
I.B.P.A.T. Local 12

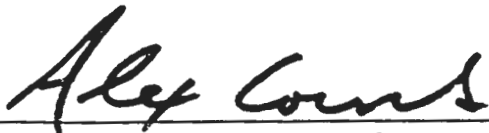

United Union of Roofers, Waterproofers and
Allied Workers Local 40


Glaziers Local 718


Sheet Metal Workers' International
Association Local 104


International Brotherhood of Electrical
Workers-Local 6

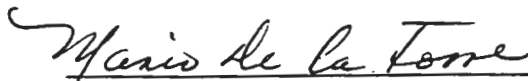
 8/23/95
Pile Driver Local #34



Laborers' International Union of
North America - Local 36 Hod Carriers



Operative Plasterers' Local No. 66



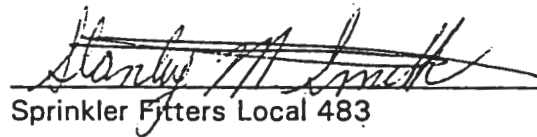
Laborers' International Union of
North America - Local 261



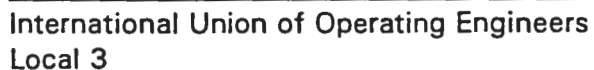
International Brotherhood of Teamsters,
Chauffeurs, Warehousemen - Local 216



Northern California District Council of
Laborers



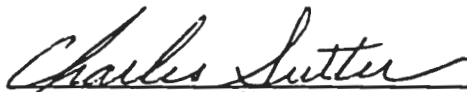
Sprinkler Fitters Local 483



International Union of Operating Engineers
Local 3



Painters District Council #8



Latherers Local 68L

PROJECT STABILIZATION AGREEMENT

for the

**SAN FRANCISCO ENERGY COMPANY
COGENERATION FACILITY
SAN FRANCISCO, CALIFORNIA**

May 31, 1995

**PROJECT STABILIZATION AGREEMENT
FOR THE
SAN FRANCISCO ENERGY COMPANY
COGENERATION FACILITY PROJECT
SAN FRANCISCO, CALIFORNIA**

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**PROJECT STABILIZATION AGREEMENT
for the
SAN FRANCISCO ENERGY COMPANY
COGENERATION FACILITY
SAN FRANCISCO, CALIFORNIA**

PREAMBLE

This Agreement is made and entered into the 31st day of May, 1995, by and between _____, (hereinafter referred to as "EPC Contractor"), together with other contractors and/or subcontractors (hereinafter collectively referred to as "Contractor(s)"), who shall become signatory to this Project Stabilization Agreement (hereinafter referred to as "Agreement") by signing the "Agreement To Be Bound" (Attachment B), and the San Francisco Building & Construction Trades Council (hereinafter referred to as "Council") and the affiliated local unions signatory hereto, (hereinafter referred to as "Local Unions") hereinafter collectively referred to as "Unions". The parties further agree that the provisions of this Agreement shall apply to the San Francisco Energy Company Cogeneration Facility, San Francisco, California, (hereinafter referred to as "Project").

COVENANTS

WHEREAS, the parties to this Agreement mutually agree that safety, quality and productivity are primary goals; and

WHEREAS, the parties recognize the need for safe, efficient and speedy construction in order to reduce unnecessary delays and further to contribute significantly to safe, efficient and shorter construction schedules, thereby further reducing costs; and

WHEREAS, the parties desire to mutually establish and stabilize wages, hours and working conditions for the workers employed on the Project by the Contractor(s), and further to encourage community participation and close cooperation between the parties to the end that a satisfactory, continuous and harmonious relationship will exist between the parties to this Agreement;

NOW THEREFORE, the parties in consideration of the promises and covenants herein contained, mutually agree as follows:

**ARTICLE I
SCOPE OF AGREEMENT**

1.1 This Agreement shall apply only to that new construction work awarded to and performed by the EPC Contractor, who shall become signatory to this Agreement, and other Contractor(s), who shall sign Agreements to be Bound as stipulated in Article 3 of this Agreement.

New construction work on the Project to be performed by the EPC Contractor and other Contractor(s) includes construction and supervision of startup and performance testing for the nominal 240 MW cogeneration power plant. The EPC Contractor will design, purchase and construct the project's earthwork, piling, equipment and building foundations, erection of structural steel framed and pre-engineered buildings, installation of major equipment (combustion turbine, heat recovery steam generator, steam turbine generator), installation of other mechanical and electrical equipment, and installation of plant interconnecting piping, electrical and instrumentation.

New construction work also includes all additions, extensions, changes and extra work, which is performed prior to the notice of completion. Further, this Agreement is limited solely to this Project and shall have no force or effect on any other construction projects. There shall be no interference with vendor or supplier deliveries of equipment, apparatus, machinery, and

construction materials to the job site since such deliveries shall not fall under this Agreement. Distribution on the Project site will be done by the crafts involved in accordance with the terms and conditions of the local Collective Bargaining Agreements (hereinafter referred to as "CBA").

1.2 This Agreement shall apply only to craft employees represented by the Local Unions signatory hereto who are traditionally covered by a collective bargaining agreement on a construction project but shall specifically exclude technical or non-manual employees including, but not limited to, Contractor(s)' supervisors, superintendents, engineers, drafters, field engineers, inspectors, timekeepers, clerical and office workers, managers, messengers, guards, all medical personnel, administrator and employees classified above the classification of General Foreman.

1.3 This Agreement shall only cover onsite construction work contracted by the Owner to the Contractor(s) hereto unless otherwise stated in this Agreement. It is further recognized that the Contractor(s) is acting only on behalf of said Contractor(s), and said Contractor(s) has no authority, either express, implied, actual, apparent or ostensible, to speak for or bind the Owner. It is understood by the Contractor(s) and agreed to by the Unions, that the craft employees of the Contractor(s) will perform the work requested by the Contractor(s) and will not interfere with any other work performed by any employees of the Owner or other employees of employers under contract with the Owner to perform work not covered by this Agreement.

1.4 It is agreed by the parties signatory hereto that this Agreement shall supersede the terms and conditions of local and/or national collective bargaining agreements in effect at the time of the signing of this Agreement otherwise applicable to employees engaged in the work, to the extent that the terms and conditions of such local and/or national collective bargaining agreements conflict with or differ from the terms and conditions of this Agreement. It is further agreed and understood that all terms and conditions of appropriate local and/or national collective bargaining agreements not covered herein shall be incorporated within and made a part of this Agreement.

1.5 The EPC Contractor agrees that all ready-mix concrete to be used on the Project shall be supplied by entities which are signatory to agreements with the appropriate AFL-CIO and International Brotherhood of Teamsters locals.

1.6 The terms of this Agreement shall not apply to work of the EPC Contractor that is being performed under the terms of the Stack and Cooling Tower Agreements, the Elevator Constructors National Agreement, the National Tank Manufacturers Agreement (NTL), and the National Industrial Agreement for Instrument Technicians.

1.7 After installation is completed by the Contractor(s) and upon Owner acceptance, it is understood the Owner reserves the right to perform start-up, operation, repair, maintenance or revision of equipment or systems with persons of its choice. If required, the service representative may make a final check to protect the terms of a manufacturer's guarantee or warranty prior to start-up of a piece of equipment.

ARTICLE 2 UNION RECOGNITION AND REPRESENTATION

2.1 All bargaining unit employees hired on this Project by the Contractor(s) at any tier must, as a condition of employment, be members, or become members in good standing of the appropriate Local Union within eight (8) days following the date of employment, and remain members in good standing of the appropriate Local Union, and must pay any fees, dues or assessments in the same manner and amounts as other members of the same Local Union organizations.

2.2 The Contractor(s) recognize the Unions signatory hereto as the sole and exclusive collective bargaining representatives for its craft employees on the Project.

2.3 Authorized representatives of the Unions, identified as certified representatives of the Council by credentials issued by the Council, shall have access to the site, provided they do not unduly interfere with the work of the employees, and further provided, that such representatives fully comply with the visitor safety and security rules established for the Project.

2.4 A steward shall be a working journeyperson appointed by the authorized union representative of the Local Union who shall, in addition to his work as a journeyperson, be permitted to perform during working hours such of his union duties as cannot be performed at other times. The Local Union agrees that such duties shall be performed as expeditiously as possible and the Contractor(s) agree to allow the steward a reasonable amount of time for the performance of such duties. It is understood and agreed that the steward's duties do not include any matters relating to referral, hiring and termination. The steward shall not leave the work area without notifying the appropriate supervisor.

2.5 The steward shall perform work in the classification he/she is employed and will be paid at the appropriate journeyperson wage for the job classification in which the steward is employed.

2.6 The steward will be subject to discharge for just cause to the same extent as other employees provided however, that the Union shall be notified twenty-four (24) hours prior to the discharge.

2.7 The steward shall remain on the job until its completion, or until no more than three (3) craft employees are left on the job provided they are qualified to perform the work to be done, unless removed by the Business Manager. Nothing in this Section shall preclude the Business Manager from appointing any of the three remaining craft employees as steward.

ARTICLE 3 SUBCONTRACTING

3.1 Any subcontractor working on the Project shall, as a condition to working on the Project, become signatory to and perform all work under the terms of this Agreement by signing an Agreement To Be Bound. Each subcontractor agrees that neither it nor any of its subcontractors will subcontract any work to be done on the Project except to a person, firm, or corporation who is or becomes party to this Agreement. The furnishing of materials, supplies or equipment shall be in no case considered subcontracting, unless otherwise specified in individual CBAs and covered by Section 1.1 of this Agreement.

3.2 Except as provided for in this Agreement, all work on the Project performed by Contractor(s) shall be under the terms and conditions of CBA for the appropriate Local Unions having jurisdiction over such work. All Contractor(s) shall be notified of the terms of the CBA and shall agree to be bound by its provisions unless covered by another agreement having precedent. All appropriate provisions of CBAs, not otherwise modified by this Agreement, shall be incorporated herein by reference, as they exist and as they may be renewed, extended or amended during the term of the Agreement.

ARTICLE 4 NO STRIKE - NO LOCKOUT

4.1 There will be no work stoppages, strikes, sympathy strikes, slowdowns, picketing or lockouts on the Project. The Unions, its officers and representatives will make good faith efforts to avert or end any actual or threatened strike in violation of this Article. During the life of this Agreement, the Unions and its members, agents, representatives and employees shall not

incite, encourage, condone, or participate in any strike, walkout, slowdown, sit-down, stay-in, boycott, sympathy strike, picketing or other work stoppage or handbilling on the jobsite advocating violation of this Article, for any cause whatsoever, or any other type of interference of any kind, coercive or otherwise, and it is expressly agreed that any such action is a violation of this Article.

4.2 The Contractor(s) will not lock out Union employees on the Project. The term lock out does not include discharge for cause or layoff.

4.3 The EPC Contractor and Unions shall use their best efforts to end any violation of this Article. In the event of a violation of this Article, either party reserves the right to pursue remedies under the law.

4.4 In the event any Local Union has been unable to resolve a dispute with a signatory contractor/subcontractor through appropriate legal or contractual procedures, and provides a decision rendered through the Courts or the procedures defined in the CBA, which verifies that the contractor/subcontractor is in violation of its CBA, or the contractor/subcontractor has failed to abide by a decision of a grievance panel or arbitrator regarding the dispute, said Local Union shall give written notice to the affected contractor/subcontractor, the EPC Contractor and the Council, specifying the nature of the unresolved violation within five (5) working days after the contractor/subcontractor has failed to comply. If it is validated through the Courts or the procedures defined in the CBA or this Agreement that the contractor/subcontractor has violated the CBA or this Agreement and has failed to comply with a properly determined resolution of the dispute, the Council shall notify the EPC Contractor, in writing, who shall give the affected contractor/subcontractor 72 hours written notice to comply with the decision or be removed from the Project.

ARTICLE 5 WORK ASSIGNMENTS AND JURISDICTIONAL DISPUTES

5.1 Contractor(s) shall stipulate to and have the responsibility for making work assignments in accordance with the rules, regulations and procedures of the Plan for Settlement of Jurisdictional Disputes in the Construction Industry approved by the Building & Construction Trades Council AFL-CIO, June 14, 1984, or any successor plan.

5.2 There will be no strikes, work stoppages, work interruptions, slowdowns, sympathy strikes, picketing, handbilling, public notices or other interferences with the work while any jurisdictional dispute is being resolved. Pending resolution of the dispute, the work shall continue uninterrupted as assigned by the Contractor(s). The Contractor(s) shall have the right, in the event of a work stoppage by the Unions, to replace the employees represented by the Unions in violation of this Agreement in any way the Contractor(s) choose, until the Unions effect the return to work of such employees, provided the Contractor(s) have exhausted the provisions of Article 10.

ARTICLE 6 JOINT LABOR-MANAGEMENT MEETINGS

6.1 A Joint Labor-Management meeting between the EPC Contractor and the signatory Unions, will be held at regular and mutually agreed upon intervals. The purpose of these meetings is to promote harmonious labor/management relations, ensure adequate communications and advance the proficiency and efficiency of the Local Unions and the Contractor(s) on the Project. These meetings will also include discussion of the scheduling and productivity on work performed on the Project, including work performed on the Project outside the scope of this Agreement. Either party may call a joint Labor/Management meeting by giving a seven (7) day notice. Any question, clarification or interpretation of this Agreement may be presented to the labor management meetings.

6.2 A pre-job conference and work assignment/mark-up meeting will be held prior to the commencement of work to establish the scope of work in each Contractor(s)' contract. When a contract has been let to a contractor/subcontractor covered hereby, a pre-job conference and/or mark-up meeting shall be required upon request of any Local Union or any Contractor(s).

ARTICLE 7 MANAGEMENT RIGHTS AND WORK RULES

7.1 The Contractor(s) retain full and exclusive authority for the management of their work forces for all work performed under this Agreement and shall retain all existing rights of management and all rights conferred on it by law.

7.2 The Contractor(s) retain the full right to develop and establish jobsite work rules, including discipline and discharge procedures, which are not inconsistent with this Agreement or CBAs.

7.3 The Contractor(s) retain the full and exclusive right to purchase materials, equipment and/or machinery from any source, except as specified in the CBAs.

ARTICLE 8 WAGE SCALES AND FRINGE BENEFITS

8.1 All craft employees covered by this Agreement shall be classified and paid in accordance with the classification, wage scales and fringe benefits contained in the appropriate CBAs which have been negotiated by the historically recognized bargaining agencies. Attachment A provides a partial summary of the appropriate wage and fringe benefit package for each Local Union.

8.2 The Contractor(s) agree to recognize and put into effect such increases in wages and recognized fringe benefits as shall be negotiated between the various Local Unions and the historically recognized local bargaining unit on the effective date as set forth in the applicable agreement.

ARTICLE 9 GRIEVANCE PROCEDURE

9.1 It is mutually agreed that any question(s) arising out of and during the term of this Agreement involving its interpretation and application (other than jurisdictional disputes), including issues in dispute regarding jobsite employment, shall be considered a grievance.

9.1.1 This Grievance Procedure shall be applicable to the EPC Contractor and craft employees employed by the EPC Contractor only. All subcontractor(s), at any tier, shall be covered, along with their craft employees, by the grievance procedure provisions of the CBA.

9.2 A grievance shall be considered null and void if not brought, in writing, to the attention of the appropriate contractor/subcontractor and the EPC Contractor within five (5) working days after the incident occurred which initiated the alleged grievance.

9.3 Grievances shall be settled according to the following procedure:

Step 1: The steward and the grievant shall attempt to resolve the grievance with the craft supervisor.

Step 2: In the event the matter remains unresolved in Step 1 above, within five (5) working days the grievance may then be referred, in writing, to the Business Manager of

the Local Union involved and the labor relations representative of the individual contractor/subcontractor and the EPC Contractor for discussion and resolution.

Step 3: If the grievance is not settled in Step 2, within an additional five (5) working days either party may request the dispute be submitted to arbitration or the time may be extended by mutual consent of both parties. The request for arbitration and/or the request for an extension of time must be in writing with a copy to the individual contractor/subcontractor, EPC Contractor, Council and Local Union.

The parties shall agree on the selection of an impartial arbitrator. If unable to agree on an impartial arbitrator within five (5) days, then either party may request the Federal Mediation and Conciliation Service ("FMCS") to submit a list of seven (7) names. The parties shall meet and each party, beginning with the party who is responding to the grievance, shall alternately strike one name from the list until one name remains. The remaining name shall be appointed as the impartial arbitrator (hereinafter defined as "Arbitrator").

The Arbitrator's decision shall be submitted in writing and shall be final and binding on all parties signatory to this Agreement. The expense of arbitration, including the cost of the Arbitrator and the cost of necessary expenses required to pay for facilities for the hearing of cases, shall be borne by the losing party. The Arbitrator's decisions shall be confined to the question posed by the grievance and the Arbitrator shall not have authority to modify, amend, alter, add to or subtract from, any provision of this Agreement.

9.4 The Contractor(s), as well as the Unions, may bring forth grievances under this Article.

ARTICLE 10 REFERRAL

10.1 Contractor(s) performing construction work on the Project described in this Agreement shall, in filling craft job vacancies, utilize and be bound by the registration facilities and referral systems established or authorized by the Local Unions signatory hereto when such procedures are not in violation of Federal, State or applicable law. The Contractor(s) shall have the right to reject any applicant referred by the Local Unions.

10.2 In the event referral facilities maintained by the Local Unions are unable to fill the requisition of a Contractor(s) for craft employees within a forty-eight (48) hour period, unless the CBA provides for a longer period of time, after such requisition is made by the Contractor(s) (Saturday, Sunday and holidays excepted), the Contractor(s) shall be free to obtain craft employees from any source.

10.3 The Unions shall exert their utmost efforts, including requesting assistance from other local unions, to recruit sufficient number of skilled craft employees to fulfill the manpower requirements of the Contractor(s).

10.4 The provisions of Article 9, for the resolution of any disputes, shall apply to any disagreements over this Article, except as specified in the CBAs.

ARTICLE 11 HOURS OF WORK, OVERTIME AND SHIFTS

11.1 As used throughout this Agreement, the term CBA refers to the current CBA negotiated by the historically recognized bargaining agencies with Local Unions having jurisdiction over the work to be performed who are parties to this Agreement. The provisions of such CBAs and any duly negotiated and succeeding CBAs, are applied and incorporated by reference as though set forth herein verbatim.

11.2 Hours of Work: The work week will start on Monday and conclude on Sunday. Eight (8) hours per day (seven (7) hours per day for Electricians, Pipefitters and Sheet Metal Workers) shall constitute a standard work day between the hours of 7:00 a.m. and 5:30 p.m. with one-half (1/2) hour designated for lunch, midway through the shift. Forty (40) hours per week (thirty-five (35) hours for Bricklayers, Electricians, Pipefitters and Sheet Metal Workers), Monday through Friday, shall constitute a regular week's work. Nothing herein shall be construed as guaranteeing any employee seven (7) or eight (8) hours per day or thirty-five (35) or forty (40) hours per week.

11.2.1 Because the length of the work day varies between crafts, the Contractor(s) shall have the right to vary the starting and/or quitting times in order to provide adequate manpower coverage on the Project. Starting and quitting times may be varied within the times provided for in this Article.

11.2.2 For any Local Unions whose CBAs include provisions for "Off Fridays", the Contractor(s) shall have the option to schedule up to one-half of the individual Craft employees to work on a scheduled Off Friday at the regular straight time rate of pay. Those employees who work on the scheduled Off Friday shall substitute the Friday of the following week as their scheduled Off Friday.

11.3 Overtime: All overtime hours worked before or after the regularly established shift hours and the first ten (10) hours worked on Saturday shall be paid at the rate of time and one-half, unless a higher overtime rate is provided for in the appropriate CBA, in which case the higher rate shall be paid. All other overtime worked shall be paid at the rate of double time.

If any CBA includes a provision which would require employees covered by the CBA to receive a higher overtime rate of pay because employees of another CBA are working on the Project and are receiving a higher overtime rate, the provision of the CBA shall not apply to this Project.

11.4 Shifts: The Contractor(s) shall have the right to establish shifts for any portion of the work in accordance with this Article as provided for under the CBAs. Shift work may be performed at the option of the Contractor(s) but, when performed, it must continue for a period of not less than five (5) consecutive working days, unless otherwise agreed to by the Local Union affected.

ARTICLE 12 HOLIDAYS

12.1 Recognized holidays on this Project shall be: New Year's Day, Presidents' Day (observed on the third Monday in February), Memorial Day (observed on the last Monday in May), Fourth of July, Labor Day, Thanksgiving Day, the Day after Thanksgiving Day and Christmas Day and other holidays which are recognized in the CBAs.

12.2 When any of the recognized holidays fall on Saturday, it shall be observed on the preceding Friday. When any of the recognized holidays fall on Sunday, it shall be observed on following Monday. No wages shall be paid for holidays not worked.

ARTICLE 13 REPORTING PAY

13.1 Unless provisions of a CBA provide differently, any craft employee reporting for work and for whom no work is provided, except when given notification not to report to work, shall receive two (2) hours pay at the regular straight time hourly rate. Any craft employee who starts work shall receive four (4) hours pay at the regular straight time hourly rate. Any craft employee who works beyond four (4) hours shall be paid for actual hours worked.

13.1.1 Whenever minimum reporting pay is provided for craft employees, they will be required to remain at the Project site available for work for such time as they receive pay, unless released sooner by the principal supervisor of the Contractor(s) or its designated representative.

13.1.2 The provisions of this Article are not applicable where the craft employee voluntarily quits or is out by reason of a strike, in which case he shall be paid for the actual time worked.

13.2 It will not be a violation of this Agreement when the EPC Contractor considers it necessary to shut down because of an emergency situation that could endanger the life or safety of any employee. In such cases, craft employees will be compensated only for the actual time worked. In the case of a situation described above whereby the Contractor(s)' request craft employees to wait in a designated area available for work, the craft employees will be compensated for the waiting time.

ARTICLE 14 ENTIRE AGREEMENT - FAVORED NATIONS

14.1 This Agreement represents the complete understanding of the parties. The provisions of this Agreement shall in every instance exclusively apply to and control work performed on the site of the Project and take precedence over provisions of local, area, regional or national labor agreements. Nothing contained in the working rules, by-laws, constitution and other similar documents of the Unions or other collective bargaining agreements, shall in any way affect, modify or add to this Agreement unless otherwise specifically indicated in this Agreement. Practices not part of the terms and conditions of this Agreement shall not be recognized.

14.2 The Unions agree that this Agreement covers all matters affecting wages, hours and other terms and conditions of employment, and that during the term of this Agreement neither the Contractor(s) nor the Union will be required to negotiate on any further matters affecting these or any other subjects not specifically set forth in this Agreement except by mutual agreement of the Council and the Local Unions involved and the EPC Contractor.

14.3 Any other agreement or modification of this Agreement must be reduced to writing and signed by the EPC Contractor, the Council and the Local Unions involved.

14.4 All Local Unions agree that CBA renewals, extensions or amendments for the Contractor(s) on the Project shall not be less favorable than those negotiated for other signatory contractors.

ARTICLE 15 GENERAL SAVINGS CLAUSE

15.1 If any article or provision of this Agreement shall be declared invalid, inoperative or unenforceable by any competent authority of the executive, legislative, judicial or administrative branch of the federal, state or local government, the parties shall suspend the operation of each article or provision during the period of its invalidity. Such suspension shall not affect the operation of any provision covered in this Agreement to which the law or regulation is not applicable.

**ARTICLE 16
CALIFORNIA ENERGY COMMISSION CONDITIONS OF CERTIFICATION**

16.1 The EPC Contractor, contractors/subcontractors, Council and Local Unions agree to work in close cooperation and harmony to ensure that the Conditions of Certification regarding transportation and any other requirements of the California Energy Commission, are complied with.

**ARTICLE 17
AFFIRMATIVE ACTION**

17.1 All affirmative action requirements will be coordinated between the affected Contractor(s), the Council and the affiliated Local Unions.

**ARTICLE 18
DRUG AND ALCOHOL POLICY**

18.1 The EPC Contractor has an established drug and alcohol policy, the purpose of which is to ensure a safe work environment free from the effects of illegal drugs and alcohol. This policy is applicable to all Contractor(s) as a condition of performing work or services on the Project. The EPC Contractor drug and alcohol policy includes drug and alcohol screening of Contractors(s)' employees consistent with applicable law, including the San Francisco Municipal Code § 3300A.5.

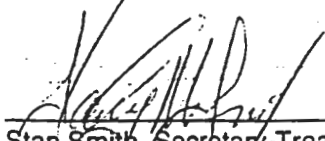
**ARTICLE 19
DURATION OF AGREEMENT**

19.1 This Agreement shall become effective on the date the contract with the successful EPC Contractor is executed by the Owner and the EPC Contractor. The Agreement shall continue in full force and effect through the completion of the scope of the Project contracted by the EPC Contractor from the Owner. The parties may mutually agree in writing to amend, extend or terminate this Agreement at any time.

SIGNATURE PAGE
PROJECT STABILIZATION AGREEMENT
SAN FRANCISCO ENERGY COMPANY
COGENERATION FACILITY

San Francisco Building
and Construction Trades Council

EPC Contractor

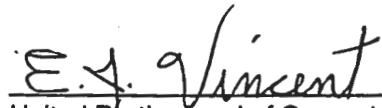

Stan Smith, Secretary-Treasurer

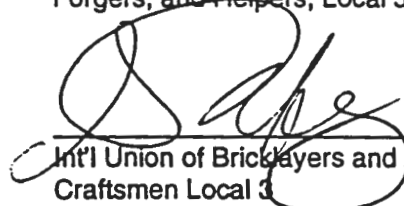
Authorized Representative

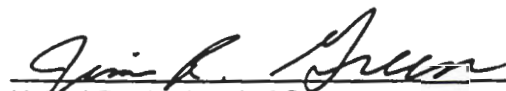
SIGNATORY UNIONS


Int'l. Association of Heat and
Frost Insulators and Asbestos
Workers, Local 16

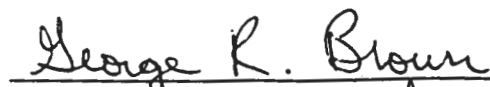

Int'l. Brotherhood of Boilermakers,
Iron Ship Builders, Blacksmiths,
Forgers, and Helpers, Local 549

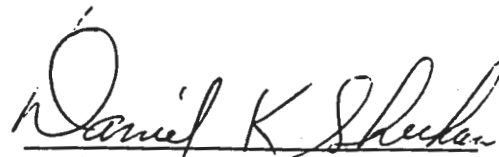

United Brotherhood of Carpenters and
Joiners of America — Millwright Local 102

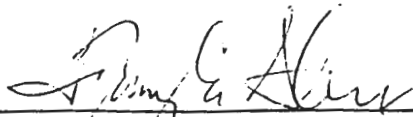

Int'l Union of Bricklayers and Allied
Craftsmen Local 3


United Brotherhood of Carpenters
and Joiners of America — District
Council 46 Northern Counties


Carpet, Linoleum & Soft Tile Workers
I.B.P.A.T. Local 12


Cement Masons' Local 580 and
District Council of
Northern California


Glaziers Local 718

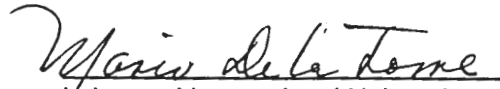


International Brotherhood of
Electrical Workers — Local 6

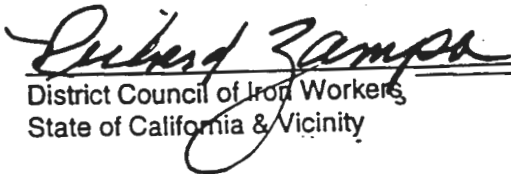


Laborers' International Union of
North America — Local 36 Hod Carriers

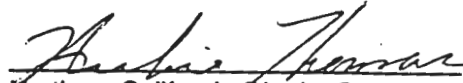
Intern'al Ass'n of Bridge, Structural and
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North America — Local 261



District Council of Iron Workers
State of California & Vicinity



Northern California District Council of
Laborers

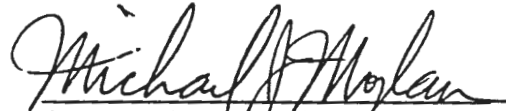


United Association for the Plumbing and
Pipefitting Industry of the United States and
Canada, Local 38

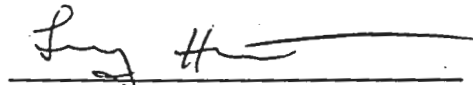
International Union of Operating
Engineers Local 3



Intern'al Brotherhood of Painters
and Allied Trades, Local 4



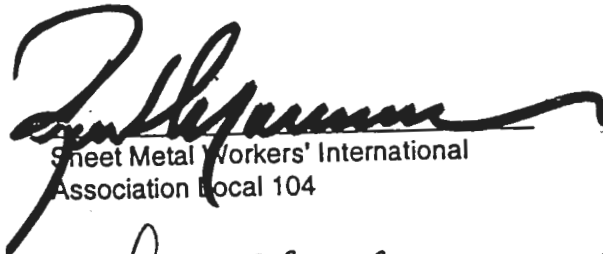
Operative Plasterers' Local No. 66



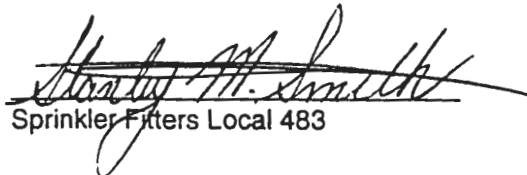
United Union of Roofers,
Waterproofers and Allied Workers
Local 40



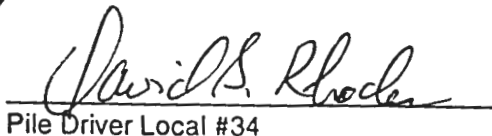
International Brotherhood of
Teamsters, Chauffeurs, Warehousemen
Local 216



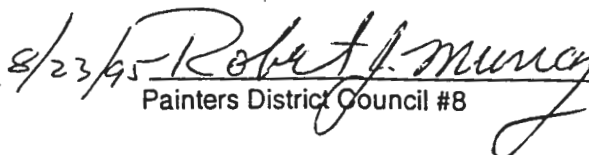
Sheet Metal Workers' International
Association Local 104



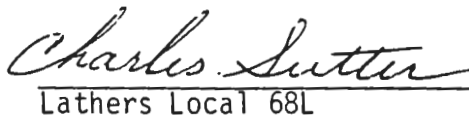
Sprinkler Fitters Local 483



Pile Driver Local #34



8/23/95 Painters District Council #8



Lathers Local 68L

**AGREEMENT for
CONSTRUCTION EMPLOYMENT GOALS at the
SAN FRANCISCO ENERGY COMPANY
COGENERATION FACILITY**

=====

This Agreement is made and entered into the 31st day of May, 1995, by and between _____ (hereinafter "EPC Contractor"); the San Francisco Building & Construction Trades Council (hereinafter "Council") and its affiliated local unions signatory hereto (hereinafter "Local Unions"); Young Community Developers, Inc. (hereinafter "YCD"); and Aboriginal Blackman Unlimited (hereinafter "ABU").

WHEREAS, San Francisco Energy Company (hereinafter "SF Energy") believes that the host community for its plants should benefit from employment and other opportunities its projects create; and

WHEREAS, SF Energy is planning to construct a nominal 240 MW cogeneration plant (hereinafter "Project") in the Bayview Hunters Point community (hereinafter the "Community"); and

WHEREAS, it is anticipated that at its peak approximately two hundred construction workers will be employed on the Project; and

WHEREAS, the parties to this Agreement desire to maximize employment opportunities for residents of the Community; and

WHEREAS, the Council and Local Unions have agreed in the Project Stabilization Agreement to exert their utmost efforts to fulfill the manpower requirements for construction of the Project; and

WHEREAS, YCD and ABU are Community-based organizations that are capable of recruiting, screening and certifying members of the Community that are interested in working on construction of the Project.

NOW THEREFORE, the parties, in consideration of the premises and covenants herein contained, mutually agree as follows:

1.0 The employment goals for the Project are as follows:

- Minority - 25.6%;
- Women - 6.9%;
- Community residents - 50%;
- Apprentice positions filled by Community residents - 50%

2.0 The Council and Local Unions agree to make good faith efforts to achieve these goals on a craft-by-craft basis and to cooperate with the selected EPC Contractor, YCD and ABU in recruiting, screening and certifying Community residents for potential employment in constructing the facility. It is also agreed that, in accordance with the Project Stabilization Agreement,:

(a) Community residents who are determined, available and fully qualified at the journey level shall be eligible for indenture in the applicable Local Union and shall be eligible for employment on the Project;

(b) Community residents who are not fully qualified at the journey level, but who have prior construction work experience, shall be eligible for indenture in the applicable Local Union, subject to the standards approved by the Division of Apprenticeship Standards, Department of Industrial Relations, State of California, and shall be eligible for employment on the Project; and

(c) Community residents who have no prior construction work experience, but who meet the requirements for apprenticeship in the craft of their choice, shall be eligible for indenture in the apprentice program of such craft, subject to the standards approved by the Division of Apprenticeship Standards, Department of Industrial Relations, State of California, and shall be eligible for employment on the Project.

3.0 Prior to commencement of construction, the Unions and SF Energy will meet with the EPC Contractor, its known subcontractors, local Community outreach organizations, YCD and ABU to discuss the construction affirmative action and residency employment goals for the Project and to agree upon strategies to achieve them. In addition, the Council, Local Unions and the EPC Contractor will request assistance from YCD and ABU, as needed, to coordinate with Chinese for Affirmative Action, Ella Hill Hutch Community Center, Mission Hiring Hall, South of Market Employment Center, and other such organizations to help achieve the goals.

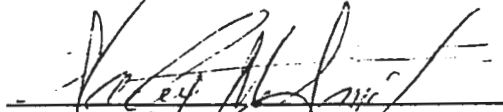
4.0 In addition to the initial pre-construction meeting discussed in section 3.0 of this Agreement, the Council and Local Unions agree to participate in regularly scheduled meetings with the EPC Contractor, its subcontractors, YCD and ABU to review progress and plan additional measures necessary to achieve the goals.

4.0 The Council, Local Unions and EPC Contractor agree to comply with all applicable City and County of San Francisco ordinances and regulations regarding equal opportunity.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized officers, to be effective as of the day and year first above written.

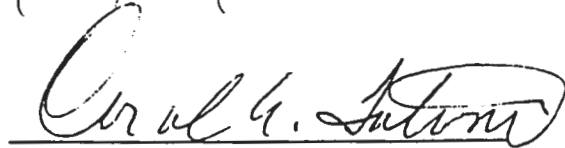
SIGNATURE PAGE
AGREEMENT for CONSTRUCTION EMPLOYMENT GOALS

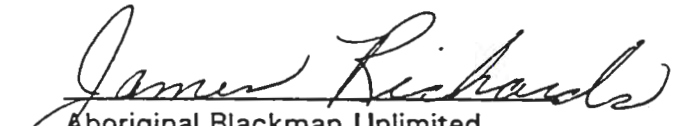
San Francisco Building and
Construction Trades Council


Stan Smith, Secretary-Treasurer

EPC Contractor

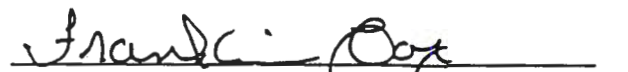
Authorized Representative

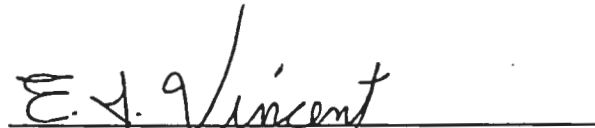

Carol G. Sutton
Young Community Developers, Inc.

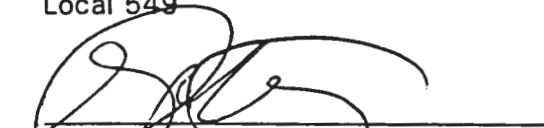

James Richards
Aboriginal Blackman Unlimited

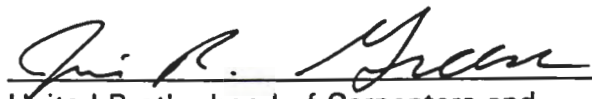
SIGNATORY UNIONS


Intl. Association of Heat and Frost
Insulators and Asbestos Workers, Local 16


Int'l. Brotherhood of Boilermakers, Iron Ship
Builders, Blacksmiths, Forgers, and Helpers,
Local 549


United Brotherhood of Carpenters and
Joiners of America-Millwright Local 102

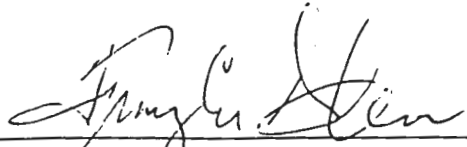

Int'l. Union of Bricklayers and Allied
Craftsmen Local 3

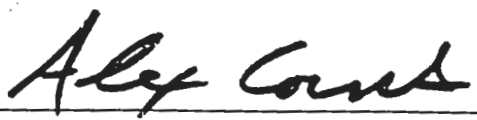

United Brotherhood of Carpenters and
Joiners of America-District Council 46
Northern Counties

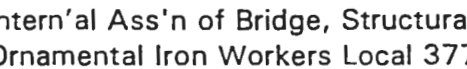

Carpet, Linoleum & Soft Tile Workers
I.B.P.A.T. Local 12

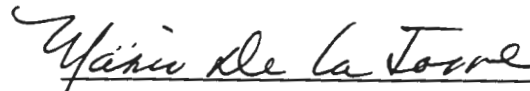

Cement Masons' Local 580 and
District Council of Northern
California

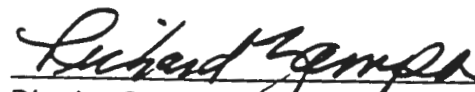

Glaziers Local 718

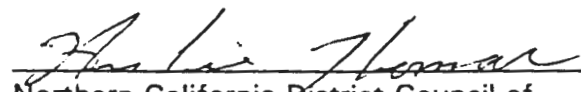

International Brotherhood of Electrical
Workers-Local 6

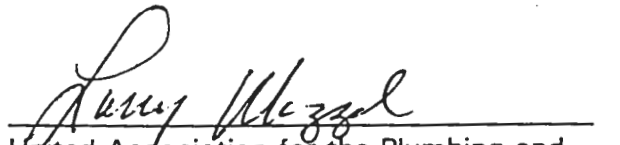

Laborers' International Union of
North America - Local 36 Hod Carriers

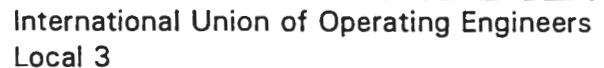

Intern'al Ass'n of Bridge, Structural and
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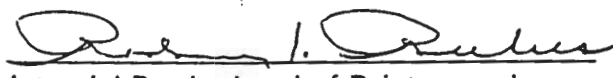

Laborers' International Union of
North America - Local 261

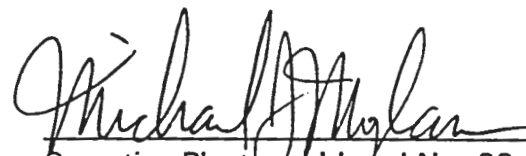

District Council of Iron Workers
State of California & Vicinity

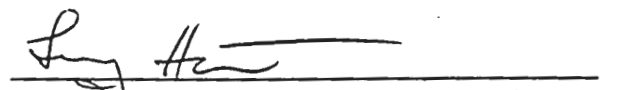

Northern California District Council of
Laborers

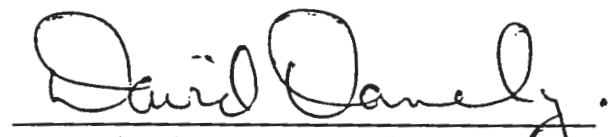

United Association for the Plumbing and
Pipefitting Industry of the United States and
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International Union of Operating Engineers
Local 3

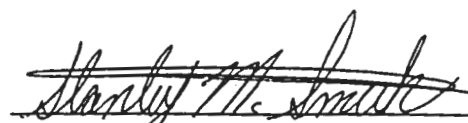

Intern'al Brotherhood of Painters and
Allied Trades, Local 4

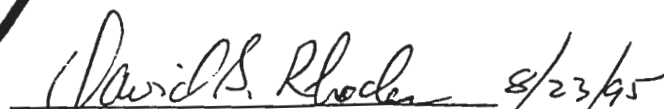

Operative Plasterers' Local No. 66

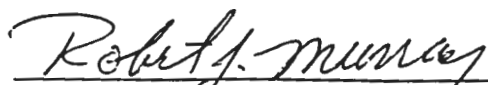

United Union of Roofers, Waterproofers and
Allied Workers Local 40

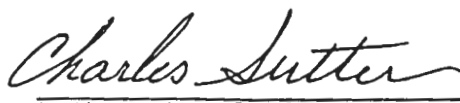

International Brotherhood of Teamsters,
Chauffeurs, Warehousemen - Local 216


Sheet Metal Workers' International
Association Local 104


Sprinkler Fitters Local 483


Pile Driver Local #34 8/23/95


Painters District Council #8


Lathers Local 68L

***APPENDIX: MEMORANDUM
OF
UNDERSTANDING***

MEMORANDUM OF UNDERSTANDING

Between

The Bayview Hunters Point Clean Environment Coalition

and

San Francisco Energy Company

This Memorandum of Understanding (the "MOU") is made and entered into as of August 24, 1995, by and between The Bayview Hunters Point Clean Environment Coalition (the "Coalition"), an open membership organization concerned about the general welfare of the Bayview Hunters Point Community (the "Community"), and San Francisco Energy Company ("SF Energy"), a limited partnership between AES Pacific, a wholly owned subsidiary of the AES Corporation and Pacific Gas Power, Inc. a wholly owned subsidiary of Southern Natural Gas, Inc. (SONAT).

RECITALS

This MOU is made with respect to the following considerations:

- SF Energy plans to construct and operate a 240 MW cogeneration plant (the "Project") in the Bayview Hunters Point area of San Francisco.
- During the construction and operation of this plant, SF Energy will spend approximately \$270 million locally on goods, services and wages.
- Approximately 220 new jobs will be created by this project - 195 new construction jobs and 25 new permanent jobs. Additional new jobs may be created as a result of local procurement of goods and services.
- SF Energy is committed to taking the necessary and appropriate steps to ensure that the construction and operation of this plant contributes to the socioeconomic well-being of the Community.
- According to the 1990 census, the ethnic composition of the Community is 62% African-American, 22% Asian, 11% Caucasian, and 4% other.
- The unemployment rate in the Community is 14.1%. The unemployment rate for African-American community residents is even higher at 17.7%. The unemployment rate for African-Americans between the ages of 16 and 21 is at least 3 times the overall rate for African-Americans.

- The high unemployment rate for African Americans combined with other adverse socioeconomic conditions has led to a steady decline in the Community's African-American population and the general quality of life.
- The Coalition is an open organization of community residents and representatives of broad-based community organizations and institutions who are dedicated to improving the Community by working to make sure that SF Energy and other businesses make and deliver on commitments to the Community.
- A 1970 Memorandum of Agreement (the "MOA") between the San Francisco Building and Construction Trades Council, the Bayview Hunters Point Model Neighborhood and the Associated General Contractors was effective in producing construction employment opportunities for community residents. The MOA is a model that can be used by the SF Energy in connection with this project.

AGREEMENT

THEREFORE, SF Energy and the Coalition (the "Parties") agree as follows:

I. Purpose of MOU

The purpose of this MOU is to set forth the goals, and strategies for achieving those goals, that the Parties have agreed to in their mutual effort to ensure that the plant will be built and operated safely; will maximize employment of Community residents, particularly African American residents, during construction and operation; and will maximize business opportunities for community based businesses, particularly African American owned businesses, during construction and operation of the plant.

II. Health and Safety

The Parties agree that first and foremost the cogeneration plant must be safe and contribute to reducing the level of emissions currently being generated in the Community by existing Pacific Gas & Electric Company (PG&E) power plants.

The Parties agree that the California Energy Commission's (the "CEC") Final Decision on SF Energy's Application for Certification will contain the best information and analyses on which to base a decision on the cogeneration plant's safety and the extent to which it will reduce emissions in the Community. The CEC's Final Decision is the functional equivalent of an Environmental Impact Report ("EIR").

The following initial steps will be taken to address the Community's health and safety concerns:

- A. Establish a Community Health and Safety Advisory Committee (the "CHSAC"), comprised of people who live or work in the Community that have an interest and/or expertise in the area of health and safety.

The CHSAC will meet regularly to review the plant's health and safety program. As required, the CHSAC will advise SF Energy on strategies and plans to improve the health and safety program.

- B. Develop and implement a community education program to inform Community residents about emergency procedures for the plant and other existing emergency procedures. In addition, SF Energy is committed to participating in safety and emergency programs such as the voluntary Neighborhood Emergency Response Team (NERT).

III. Employment

A. Construction Work Force Goal

1. The Parties will make good faith efforts to assure that no less than 50% of the workforce in each craft are Community residents and that 50% of all apprentice positions in each craft are filled by Community residents.
2. The following steps will be taken to achieve these goals:
 - a. Pursuant to the Agreement for Construction Employment Goals, the unions will make good faith efforts to adhere to the following principles:
 - (1) Community residents who are available and fully-qualified at the journey level shall be eligible for employment on this project.
 - (2) Community residents who are not fully qualified at the journey level, but who have prior construction work experience, shall be eligible for indenture in the applicable local union.
 - (3) Community residents who have no prior construction work experience but who meet the requirements for apprenticeship in the craft of their choice shall be eligible for indenture in the apprentice program of such craft and shall be eligible for employment on this project.
 - b. Community residents who are unable to meet the requirements for employment or apprenticeship in the craft of their choice will be encouraged to participate in existing job readiness programs.
 - c. Prior to commencement of construction each contractor and subcontractor will be required to attend pre-construction meetings with Young Community Developers, Inc. and Aboriginal Blackman Unlimited (the "Community Outreach Organizations") and union representatives to discuss their workforce requirements and strategies for achieving the goals set forth above.

- d. With the assistance of Community Outreach Organizations, SF Energy will inventory the Community labor force to determine the availability of Community residents with the requisite qualifications to fill available construction jobs.
- e. SF Energy will hold regularly scheduled meetings with the contractors, the unions, and the Community Outreach Organizations to review progress towards achieving the 50% construction workforce goal. When appropriate, additional measures to achieve the goals will be identified. Such measures might include, suspension of the contract or subcontract of the contractor or subcontractor that is out of compliance and/or withholding progress payments.
- f. These construction employment goals will be made a requirement in each construction contract and subcontract resulting from this project.

B. Permanent Workforce

- 1. The goal is that at least 50% of the permanent workforce will be Community residents. To achieve this goal the following steps will be taken:
 - a. With the assistance of the Community Outreach Organizations, SF Energy will identify qualified Community residents that are available and available Community residents that are interested in becoming qualified.
 - b. Working with the assistance of Community Outreach Organizations, SF Energy will hold Community meetings to explain permanent employment opportunities that will result from the project and to assist Community residents in completing employment applications.
 - c. SF Energy will develop general job descriptions for positions that will be filled through outside hire. The descriptions will be reviewed with Community Outreach Organizations before being finalized. At least 30 days before general recruitment commences, Community Outreach Organizations will be provided copies of the position descriptions and requested to recruit, screen and refer applicants from the Community to SF Energy.
 - d. Qualified Community residents will be given first consideration for available positions.
 - e. SF Energy will develop a public information program to keep the Community informed about the project and to educate residents about the industry and career opportunities therein.

IV. Contracting and Procurement

Excluding the cost of major equipment, development expenses and financing during construction, this project is estimated to cost approximately \$123,000,000.00 to build.

The Parties have agreed upon goals to provide the maximum practical opportunity for Community based minority business enterprises (MBEs) and women owned business enterprises (WBEs) to participate in providing subcontracting, consulting, and supplier services for this project.

These goals, which represent percentages of the total dollar value of local expenditures in each category, are as follows:

	<u>MBE *</u>	<u>WBE *</u>
Construction	15%	5%
Professional Services	15%	5%
Suppliers	15%	5%

Community based businesses will be given first consideration in awarding of contracts.

(* These goals are as established by the California Public Utilities Commission in its General Order 156.)

Based upon its contract with PG&E and its lease with the Port of San Francisco, SF Energy is obligated to comply with procedures administered by the California Public Utilities Commission (CPUC) and the San Francisco Human Rights Commission (SFHRC) to increase contracts with MBEs, WBEs and disabled veterans enterprises (DVEs). SF Energy and the Coalition will work closely to implement the following action steps which they believe are consistent with CPUC and SFHRC requirements:

- A. SF Energy will develop lists of potential opportunities for MBEs and WBEs to participate in this project. Special efforts will be made to identify opportunities for small Community based businesses. That list will be reviewed with the Coalition and organizations representing MBEs and WBEs. Where appropriate, additions or deletions may be made to the lists.
- B. With the assistance of the Coalition, SF Energy will identify Community based contractors, professional service providers and suppliers who could provide goods and services needed to complete and operate this project. If warranted Community meetings may be held with the interested firms to discuss the project and procedures they should follow to receive consideration.
- C. On a case-by-case basis SF Energy, SF Energy's Contractor and subcontractors will assist MBEs and WBEs in identifying and securing assistance in the areas of accounting, estimating, finance, insurance, bonding or to develop the skills applicable to small business development.

- D. Prior to executing a construction contract, SF Energy will require the Contractor to provide evidence of commitments to MBEs and WBEs at levels that satisfy the goals set forth herein.

V. Community Empowerment

In an effort to empower Community organizations, institutions and programs SF Energy will provide the Community with urgently needed support and serve as model for other businesses that wish to become a part of the Community. In its efforts to empower the Community, SF Energy will work with and through existing organizations, institutions and programs where possible. The following specific steps will be taken:

- A. SF Energy will establish a Community Empowerment Fund (the "CEF") to support programs, projects and activities that focus on empowering Community residents, stimulate economic development in the Community and help improve the quality of life for Community residents of all ages and circumstances. During construction and 30 years of operation SF Energy will contribute approximately \$13,000,000.00 to the CEF (approximately 10% of the \$123,000,000.00 cost to build the plant).

SF Energy's initial annual contribution to the CEF will be approximately \$250,000. Subsequent annual contributions will be adjusted for inflation. These funds will be contributed to the CEF in quarterly installments in January, April, July and October of each year.

- B. Other actions SF Energy will take to empower the Community may include:

1. Establishing a Community Empowerment Fund Advisory Board (CEFAB), to assist SF Energy in formulating priorities (e.g. a comprehensive community based employment and training center or a scholarship fund), and procedures to be used in distributing CEF funds.
2. Encouraging all of its employees to maintain active involvement in Community or Community related programs, projects, activities, organizations and institutions.
3. Giving first consideration to those otherwise qualified contractors, consultants, vendors, and suppliers who have a history of active involvement in the Community or who make a commitment to become involved in the Community over and beyond what may be necessary to provide goods or services to SF Energy.
4. Establishing an internship program for students from the Community. Placements through this program may be at the San Francisco plant, AES and SONAT Headquarters or AES and SONAT facilities throughout the world.
5. Working with schools in the Community on energy related projects that contribute to the educational process and that are beneficial to Community residents.

VI. MONITORING

SF Energy and the Coalition will meet at least quarterly, but more frequently, if necessary, to review and discuss the implementation of the terms of this MOU. When necessary, new and/or additional strategies will be developed to enhance the effectiveness of their efforts.

VII. TERM OF AGREEMENT

This MOU shall continue in full force and effect until such time as the goals contained herein have been achieved or the Parties determine that it is no longer necessary to achieve its intended purposes.

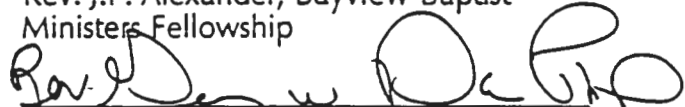
SF Energy Company


Mark Woodruff, General Manager

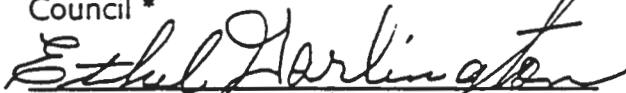
24 AUGUST 1995

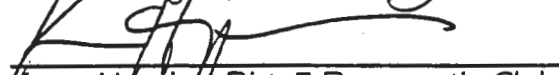
The Bayview Hunters Point
Clean Environment Coalition

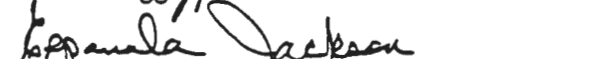

Rev. J.P. Alexander, Bayview Baptist
Ministers Fellowship


George Davis, BVHP Senior Center

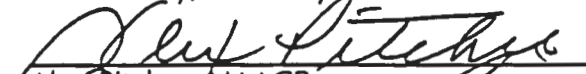

Marie Franklin, Hunters Point Executive
Council *


Ethel Garlington, Resident


Karen Huggins, Dist. 7 Democratic Club


Espanola Jackson, Dist. 7 Democratic Club

Sam Murray, New Bayview Committee


Alex Pitcher, NAACP


James Richards, Aboriginal Blackman
Unlimited


Carol Tatum, Young Community Developers


Leon Thibeaux, Resident

Essie Webb, Resident

* Bayview, All Hollow, La Salle, Shoreview
Tenants Association

VII. TERM OF AGREEMENT (continued)

The Bayview Hunters Point
Clean Environment Coalition

[illegible]

Oversite of the Fund by Human Rights Commission

Organizational Contacts & Endorsements

New Bayview Committee * *50 group under this umbrella*

San Francisco NAACP *

Bayview Baptist Ministers Fellowship *

Interview Tenants Association *

Young Community Developers *

✓ Bayview Hunters Point Multipurpose Senior Center * *(Contribution)*

Southeast Community Facility Commission

Southeast Community College Advisory Committee

3rd Street Merchants Association **

✓ District Seven Democratic Club * *(contribution)*

✓ Aboriginal Blackman Unlimited * *(contribution)*

New Hunters Point Homeowners Association

Westbrook Resident Management Corporation

Hunters View Resident Management Corporation

Hunters Point Shipyard Citizens Advisory Committee

Southeast Community Development Corporation **

Morgan Heights Homeowners Association (contacted to request meeting, but no reception)

Mariner's Village Homeowners Association contacted to request meeting, but no reception)

Malcolm X School

✓ Twenty First Century Academy *(donation to library \$25,000 matching donation)*

Washington-Carver School

Charles Drew School

Bayview Hunters Point Sierra Club Members

Hunters Point Ecumenical Council

Bayview Hunters Point Clean Environment Coalition *

Socio-Economic Environmental Justice Advocates (SEEJA)

Friends of Islais Creek

* Endorsement

** Endorsement by President/Chair only

APPENDIX: ALTERNATIVES

***FSA Alternatives
Appendix B***

1. Pier 29/31

This site is at Pier 29 and 31. The Embarcadero is on the west and the San Francisco Bay is on the east. There are two buildings to the north and south of the site, respectively, each identified by Conifer/Trent Materials Packaging Company signs. Between the two buildings is a laydown/storage area, sufficiently large to locate a three acre power plant site. The area consists of mixed land uses but is zoned for small industrial uses (M-1). The warehouses are over water, and mounted on stilts. The site is across the street from condominiums. From the warehouse is a direct view of Coit Tower and Telegraph Hill to the northwest. There is a residential/commercial combined use area, immediately west, across The Embarcadero. The residential population density is greater than the Port Site and maybe greater than or equal to the Innes Avenue site. Therefore, this site was eliminated from further consideration as it did not seem likely that it would reduce or eliminate any of the potential impacts of the Innes Avenue or Port sites.

2. Pier 39

There are two open space areas adjacent to Pier 39 on The Embarcadero. The open spaces are approximately three + acres each. They are public areas, and developed as parks. Therefore, these two sites were eliminated from further consideration as alternative sites.

3. Muni Bus Yard

The Muni Bus yard is identified as a public district area on the San Francisco zoning maps. The Muni Bus yard is approximately three + acres bounded by Beach Street on the north, Stockton Street on the east, North Point Street to the south, and Powell Street on the west. The site is currently used as a Muni Bus yard. The site is bounded by commercial uses on the north, east and west. However, immediately across the street to the south is a residential area consisting of houses and apartment uses. In addition, in close proximity in other directions are additional residential areas. Therefore, this site was eliminated from further consideration as an alternative site.

4. Across the street from the Muni Bus Yard

This site is adjacent to the Muni Bus yard, to the southeast, and is bounded by North Point Street on the north, Kearney Street on the east, Francisco Street to the south, and Midway Street on the west. Judging by zoning maps, this site is a public area which is greater than 3 + acres. However, it is not a lot, the area is spread over four city blocks, divided by the above streets. All of the public area is occupied by buildings or elevated automobile garages. Therefore, this site was eliminated from further consideration as an alternative site.

5. Lot Number 3739

This site is an empty lot (identified as lot number 3793 on the San Francisco zoning map). The site is bounded by Townsend Street on the northwest, shared border on the Northeast, King Street to the southeast, Second Street on the southwest and it is abutted on the northeast by the Steamboat Point Apartments at 49 Townsend Street. The land uses immediately to the northwest are related to service, and light industry or business offices. The lot itself is zoned for heavy industrial uses (M-2). However, the lot is smaller than three acres. Because of its size and

immediate proximity to residential housing, this site was eliminated from further consideration as an alternative site.

6. Pier 46

Pier 46 was identified because the area is public lands. Pier 46 contains the Port Authority Maintenance Shops. It is bounded by Berry Street to the northwest, The Embarcadero to the north, South Beach Yacht Harbor to the east and China Basin to the south. Since the site is currently occupied and there are not three acres available for power plant use, it was eliminated from further consideration.

7. Moscone Center

The area around the Moscone Center is zoned for small industrial uses, (M-1). The area is of Folsom Street and Second Street on the north and Harrison Street and Third Street on the south. There are no empty sites in this area, and the area is currently occupied by buildings identified as PacTel and Moscone Center. Therefore, this site was eliminated from further consideration.

8. SF Thermal

The site is located at 460 Jessie Street, and is the site occupied by SF Thermal. Around the corner is the Old Mint building, police and fire stations. The unoccupied remaining lot is smaller than 3 acres. Furthermore, the site is adjacent to residential hotels bordering Sixth Street. This site does not meet the size requirement of 3 acres and therefore was eliminated from further consideration.

9. San Francisco Police Department Impound Yard

In the area around Twentieth and Illinois Streets, there are many old buildings, some are unoccupied, and others are used as warehouses or for industrial purposes. There is a San Francisco Police Department impound yard across the street. Because there are no apparent empty three acre sites, this location was eliminated from further consideration.

10. City Tow Yard

At Pier 70, east of Twenty-Second and Illinois Streets, is a yard occupied by the City Tow Company. There is no apparent vacant 3 acre sites in the area, and therefore this site was eliminated from consideration.

11. Jerrold Avenue

There is a heavily industrialized area around Jerrold Avenue bounded by Napoleon Street on the north and Toland Street on the south. Next to a building identified as Tamaras Supply is an empty lot, but it is less than 3 acres. Because staff identified no vacant sites meeting the 3 acre criteria, this area was eliminated from further consideration.

12. Asphalt Plant

The Asphalt Plant straddles Jerrold Avenue on the southeast side of Quint Street. The site is across the street from the Southeast Waste Water Treatment Facility and the City and County of San Francisco Surplus Yard. There is apparently no available space at the Asphalt Plant sufficient to house the project. Site size constraints preclude this site from alternatives evaluation.

13. Egbert and Third Street

In the industrialized area around Egbert and Third Street, there is a Coca Cola Bottling Plant, and the Concord Missionary Baptist Church. Staff did not find any 3 acre sites and therefore this area was eliminated from consideration.

14. North of Candlestick Park

There is considerable open space around Fitch Street and Carroll Avenue. However, this area is used as city parking for Candlestick Park. Therefore, the area was eliminated from further consideration.

15. South of Candlestick Park

South of Candlestick Park, there is a site zoned for heavy industrial uses (M-2). This area is adjacent to Jamestown Avenue and the Hunters Point Expressway. However, construction activity has begun on the site and therefore, the area was eliminated from further consideration.

16. West of the Caltrain Passenger Station in Brisbane

To the west of Tunnel Avenue in Brisbane, there appears to be a Cal Train passenger station. Between the train tracks on the east and Bayshore Blvd. on the west there appears to be employee and truck parking for Pacific Lithograph and the Schlage Lock Company. Because the site is currently utilized for existing business the area was eliminated from further consideration.

17. South Hill Drive

On Brisbane's South Hill Drive, in Visitacion Valley, there is a 7 + acre vacant site listed by CB Commercial. In a conversation with Tim Tune, City Planner for the City of Brisbane, he indicated that the site is designated as Trade Commercial. This designation in the general plan provides for warehouses, offices and light industrial. The City of Brisbane is moving away from industrial development, towards office and commercial buildings.

Mr. Tune also indicated that there is an intermediate school located 1200 feet to the east, downwind from this parcel. A site this close to schools offers no advantages over the Port or Innes Avenue sites which are 1600 and 2000 feet away from the Malcolm X Academy, respectively.

Additionally, complaints had been lodged in Brisbane about dust from a quarry located near the parcel in question, indicating that emissions from an alternative plant would also impact the same area.

Considering the concern regarding the location of the school, which is closer than either the Port or Innes site, the site does not appear likely to reduce or eliminate any of the potential impacts at the Innes or Port sites, therefore the site was eliminated from further consideration.

18. South San Francisco - 270 Oyster Point Blvd.

At Oyster Point Blvd. near Highway 101, near 270 Oyster Point Blvd. is a site for sale by Galbreath Realty.

The businesses currently located in the Oyster Point area are representative of mixed light industrial use. There is a Marina and supporting uses, such as pleasure and sport marine craft sales and service offices. The most visible industrial site in the area is a United Parcel Service terminal.

Steve Carlson, Senior Planner, City of South San Francisco, informed staff that a power plant in this city would need to be located on land zoned M-1. He added that since a power plant is neither permitted nor excluded from land zoned M-1, the final decision would rest with the city council. Mr. Carlson did point out that the city did not want a power plant to be located on land north of Oyster Point Blvd. since the city was trying to encourage "higher end" land uses in this area. However, since the surrounding land use was incompatible with a power plant and the site did not appear likely to reduce or eliminate any of the potentially significant adverse impacts of the Innes and Port sites, this site was eliminated from consideration.

19. South San Francisco - 336 Oyster Point Blvd.

Across from 336 Oyster Point Blvd is an empty 5.5 acre lot, identified as zoned for Industrial-Research and Development. Cushman Wakefield is the agent representing the property. The site is next to the Oyster Point Business Park. Because a power plant is incompatible with existing surrounding land uses, and because this site did not appear likely to reduce or eliminate any potentially significant adverse impacts at the Innes or Port sites, staff eliminated it from consideration.

20. San Francisco International Airport

Around the north end of the San Francisco International Airport, north of the United Airlines maintenance terminal, there are no suitable three acre sites. Most land around the airport is occupied by very large maintenance and office buildings. Other open spaces are used as parking lots. Some construction is occurring to the southwest of the intersection of Highway 380 and Airport Blvd. East of this intersection, adjacent to this construction, is open space abutting the overhead freeway. However, this lot is occupied by new Toyota automobiles with license plate markers indicating Melody Toyota, which is about a mile away on El Camino Real. Furthermore, this site is not three acres. As a result, there are no sites in the area of the San Francisco International Airport which meet the minimum three acre size needed for consideration as an alternative site, and therefore, this area was eliminated from consideration.

21. San Bruno - Tanforan Shopping Center

On the San Bruno city map, East of El Camino Real, bordered by Noor Avenue on the north, Highway 380 to the south and Hamilton Avenue to the east, there appeared to be the only sufficient open space area in San Bruno to accomodate a power plant. However, field reconnaissance indicated that the site is occupied by the Tanforan Shopping Center. There is no site at this location which meets the minimum three acre size needed for consideration as an alternative site, and therefore, this area was eliminated from consideration.

22. South San Francisco - South Spruce Avenue

The South San Francisco area, east of South Spruce Avenue and west of the railroad tracks can be described as light industrial/business park. Among the industrial/business uses are a Zellerbach warehouse, and an Orowheat Bakery. Immediately to the east of the railroad tracks and west of Highway 101 (Bayshore Freeway) the area is residential.

Traversing west across the railroad tracks and travelling south on South Linden Avenue, the area's character again changes back to industrial. For example, at the intersection of South Linden Avenue and North Canal Street is Altair Gases and Equipment. At 160 South Linden Avenue, there is a facility identified as Dupont Kansai. This facility appears to be industrial or chemical manufacturing. However, there is no site in this area of South San Francisco affording the minimum three acre size, and therefore, this area was eliminated from consideration.

23. Daly City - Mussel Rock

In Daly City, east of Mussel Rock, there is a large expansive open space area. This is bordered by a refuse transfer station on the south, and the Pacific Ocean on the west. High above, to the east are residential homes overlooking the ocean.

Staff contacted Daly City regarding this site. Sharon Fierro, Senior Planner, believed that the site would not be viable, not only from Daly City's perspective but also from that of the Coastal Commission and the city of Pacifica whose city boundary lies near the site. The Coastal Commission prohibits the construction of new power plants adjacent to the California coast. It was Ms. Fierro's belief that a number of environmental and land use issues would preclude the construction of a power plant near the refuse transfer station. Since there were no apparent advantages to this area as an alternative site, this area was eliminated from consideration.

24. Oceanside Water Pollution Control Plant

Along the Great Highway, at 3500 Great Highway is the Oceanside Water Pollution Control Plant. Staff, on its own initiative and later at the request of the public, examined the area adjacent to the existing Oceanside water pollution control plant for an alternative site.

The Oceanside facility is built on land adjacent to the U.S. National Guard Armory and the San Francisco Zoo. This land is bordered by the Great Highway on the western boundary and Sloat Boulevard on the North.

Between the visible portions of the Oceanside facility and the San Francisco Zoo, north and northwest of the U.S. National Guard Armory, there appears to be land of sufficient size to

support a project alternative. However, this land has been approved to house the zoo's mammal conservation center and an avian conservation center.

The mammal conservation center was approved by the City of San Francisco, as part of the Oceanside project, and will be located above portions of the water pollution control facility which are located underground. The avian conservation center was approved by the City of San Francisco in December 1994 as part of the San Francisco Zoo Infrastructure Replacement project. The avian facility and mammal conservation center will be constructed in the next three years. All remaining land which appears to be vacant is above existing underground portions of the Oceanside Water Pollution Control facility within the San Francisco Zoo.

The location of a cogeneration power plant within the San Francisco Zoo is an incompatible land use and would preclude future recreational use. As a result, staff is unable to locate a feasible alternative site in this area.

25. 2900 Sloat Blvd.

At the request of Ms. Margaret Verges, staff attempted to identify a site for sale around the San Francisco Zoo. While staff found no such site, it did find a lot located at 2900 Sloat Blvd. Public notice was posted on the fence surrounding the site that an application for a conditional use permit had been filed, case number 93.586C. The conditional use permit requests construction on a parcel exceeding 10,000 square feet, an exception as a planned unit development from lot size and width standards, and additional dwelling density. The planned unit development, if approved, includes 16 buildings and 33 dwellings.

Besides the Zoo located across Sloat Blvd, the area is surrounded primarily by a residential area, with light commercial intermixed along Sloat Blvd. Furthermore, the site is much smaller than three acres. For the foregoing reasons, the site was eliminated from consideration.

26. San Francisco General Hospital, San Francisco State University and University of California Medical Center of San Francisco

Field reconnaissance was conducted at these three locations, because of a perceived steam need, making them potential steam hosts. However, all three facilities were eliminated from consideration because there were no three acre sites available for locating a power plant at any of the facilities.

27. The Presidio of San Francisco

The Presidio is a one thousand four hundred and eighty acre reserve, renown for its scenic setting and rich historic and natural features. By the end of 1995, the Presidio will be transferred from the Army to the National Park Service to become part of the Golden Gate National Recreational Area.

None of the planning activities for the Presidio's future include power plant development. The Final General Management Plan Amendment for Presidio of San Francisco calls for the removal of 276 nonhistoric and historic buildings to enhance the site's recreational, cultural, and natural resources. The National Park Service will establish a visitor center at the main post as well as visitor contact stations at other locations within the Presidio. The Park Service will also

provide extensive programs about the Presidio's resources and history, and global environmental issues.

Under the main post will be used for international and cultural programs; a privately operated conference, research, and training facility will be developed at Fort Scott; and the Letterman complex would be used for scientific research and education. The Sixth Army would continue to occupy up to 1.8 million square feet of building space.

Ms. Margaret Verges informed staff that there was an existing power plant at the Presidio, arguing that the San Francisco Energy Company could be located here. Staff researched this issue and determined that Building 1040 is identified as a powerhouse and steam plant. The steam plant consists of four very old boilers. The boilers are used for district heating only, there is no power generation. These boilers were used to service several buildings in the Letterman Hospital complex. As time went on, the boilers eventually failed, until only one boiler remains in service, and it can only deliver one-third of its rated capacity.

Therefore, plans at the Presidio call for the complete removal of all the boilers, and each building will supply its own heating with new individual boilers. Because of the very limited funds available for all the projects at the Presidio, there are no funds identified for rehabilitation of Building 1040 or anything beyond merely closing the door of the building and securing the building for safety purposes.

At one time an independent developer approached the National Park Service and offered to supply the district heating at no cost, and sell electricity generated by excess energy to PG&E. This offer was refused, because the plan was inconsistent with a national park.

Staff does not believe that locating the proposed project at the Presidio is feasible. As part of the National Park system, siting a 241 MW power plant at the Presidio would be viewed by the Federal government as an incompatible land use, inconsistent with the mission of the Park Service. In addition to the fact that the Federal government would not make any site within the Presidio available for the proposed power plant, rendering this site infeasible, staff believes locating a power plant at the Presidio has the potential to create significant environmental impacts in a number of technical areas, including land use and visual resources.

28. Alcatraz Island

The use of Alcatraz Island was suggested by a member of the public during one of staff's workshops on alternatives. Alcatraz, as part of the Golden Gate National Recreation Area, is under the administration of the National Park Service. For all of the reasons discussed above for the Presidio, staff believes that locating the proposed power plant on Alcatraz would be infeasible, and would result in significant environmental impacts.

APPENDIX: LORS

***Applicable Laws,
Ordinances,
Regulations,
and Standards***

ALTERNATIVES

The California Environmental Quality Act [Public Resources Code § 21100(b)(4)] and the Commission's siting regulations (Cal. Code Regs., tit. 20, § 1765) require an examination of alternatives to the applicant's proposal. CEQA and the Commission's siting regulations require the analysis to consider alternatives:

- to the project (Cal. Code Regs., tit. 14, §15126(d) and Cal. Code Regs., tit. 20, § 1765)
- to the project location (Cal. Code Regs., tit. 14, §15126(d) and Cal. Code Regs., tit. 20, § 1765)
- that are reasonable (Cal. Code Regs., tit. 14, §15126(d))
- that are feasible (Cal. Code Regs., tit. 14, §15126(d) and Cal. Code Regs., tit. 20, § 1765)
- that attain the basic project objectives (Cal. Code Regs., tit. 14, §15126(d))
- that focus on eliminating the project's significant adverse environmental impacts (Cal. Code Regs., tit. 14, §15126(d))
- that substantially lessen the project's significant adverse impacts (Cal. Code Regs., tit. 20, § 1765)

In addition, the analysis is to consider the "no project" alternative (Cal. Code Regs., tit. 14, §15126(d)).

The range of alternatives is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. CEQA states that an environmental document does not have to consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15125(d)(5)). However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (*City of Santee v. County of San Diego* (4th Dist. 1989) 214 Cal.App. 3d 1438).

AIR QUALITY

FEDERAL

A new facility or a modification of an existing facility located in a federal attainment area for a given air pollutant may need to obtain a federal permit from the U.S. Environmental Protection Agency (EPA) before commencing construction. This type of permit is known as a Prevention of Significant Deterioration (PSD) permit. The PSD permit is required for sources which emit or have the potential to emit 100 tons per year or more of any federal criteria pollutant.

On January 8, 1991, EPA delegated the implementation of the federal PSD program to the District (District). The District exercises its delegated PSD authority using its own regulations, (Rule 2 of Regulation 2) which are intended to be at least as stringent as the federal PSD requirements spelled out in Title 40, United States Code section 21.

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 to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have natural tendency to cause, injury or damage to business or property."

LOCAL

The proposed facility is subject to various District rules and regulations. Below is a synopsis of applicable District rules and regulations:

Regulation 1

Regulation 1, Section 301: This requirement is a restatement of the California Health and Safety Code, section 41700, stated above. The District has added in this section that 3 or more violation notices issued in a 30 day period constitute a demonstration of negligent conduct on the part of the permitted source operator.

Regulation 2

Regulation 2, Rule 1: General Requirements. This rule contains general requirements, definitions, and standards applicable to Rules 2 and 3 of Regulation 2. Included in this rule is the requirement that an applicant submit an application for an authority to construct and permit

to operate. This rule exempts the cooling tower and fire pump diesel engines from District permit requirements.

Regulation 2, Rule 2 - New Source Review. This rule applies to all new and modified sources. The following sections of Rule 2 are the regulations that are applicable to this project.

Section 2-2-301 - Best Available Control Technology (BACT) Requirement: This rule requires that BACT be applied for each pollutant which is emitted in excess of 10.0 pounds per day.

Section 2-2-302 - Offset Requirement, Precursor Organic Compounds and Nitrogen Oxides. This section applies to projects with an emissions increase of 50 tons per year or more of organic compounds and/or NO_x. Offsets shall be provided at a ratio of 1.15 tons of emission reduction credits for each 1.0 ton of proposed project permitted emissions.

For emissions of ozone precursors (NO_x or POC) greater than 15 tons per year but less than 50 tons per year, the District shall provide emission offsets from their Small Facility Banking Account at a ratio 1.0:1.0. Prior to the District granting offsets from the Small Facility Banking Account, the District shall require that the applicant install Best Available Retrofit Control Technology to their existing sources.

Section 2-2-302.2 - Emission reduction credits of precursor organic compounds may be used to offset increased emissions of nitrogen oxides at the ratio identified in Section 2-2-302 (1.15:1.0).

Section 2-2-303 - Offset Requirements, Particulate Matter (TSP), PM₁₀ and Sulfur Dioxide: If a Major Facility (a project that emits any pollutant greater than 100 tons per year) has a cumulative increase of 1.0 ton per year of PM₁₀ or SO₂, emission offsets must be provided for the entire cumulative increase at a ratio of 1.0:1.0.

Emission reductions of nitrogen oxides and/or sulfur dioxide may be used to offset increased emissions of PM₁₀ at offset ratios deemed appropriate by the APCO.

A facility which emits less than 100 tons of any pollutant may voluntarily provide emission offsets for all, or any portion, of their PM₁₀ or sulfur dioxide emissions increase at the offset ratio required above (1.0:1.0).

Regulation 2, Rule 2, Section 606 - Emission Calculation Procedures, Offsets: This section explains that emission offsets can be obtained from the District's Emissions Bank, the District's Small Facility Bank and/or from contemporaneous actual emission reductions. This section also indicates how to calculate the amount of offsets needed for a specific project.

Regulation 2, Rule 7: Acid Rain. This rule applies the requirements of Title IV of the federal Clean Air Act, which are spelled out in Title 40, Code of Federal Regulations, Part 72. The provisions of Part 72 will apply when EPA approves the District's Title V program, which has

not been approved at this time. The Title IV requirements will include the installation of continuous emission monitors to monitor acid deposition precursor pollutants.

Regulation 6

Regulation 6 - Particulate Matter and Visible Emission: The purpose of this regulation is to limit the quantity of particulate matter in the atmosphere. The following two sections of Regulation 6 are directly applicable to this project:

Regulation 6, Section 301 - Ringelmann No. 1 Limitation: This rule limits visible emissions to no darker than Ringelmann No. 1 for periods greater than three minutes in any hour.

Regulation 6, Section 310 - Particulate Weight Limitation: This rule limits source particulate matter emissions to no greater than 0.15 grains per standard dry cubic foot.

Regulation 9

Regulation 9, Rule 1, Section 301: Limitations on Ground Level Sulfur Dioxide Concentration. This section requires that emissions of sulfur dioxide shall not impact at ground level in excess of 0.5 ppm for 3 consecutive minutes, or 0.25 ppm averaged over 60 minutes, or 0.05 ppm averaged over 24 hours.

Regulation 9, Rule 1, Section 302: General Emission Limitation. This rule limits the sulfur dioxide concentration from an exhaust stack to no greater than 300 ppm dry.

Regulation 9, Rule 3. Nitrogen Oxides from Heat Transfer Operations: This rule limits the emission of nitrogen oxides (NO_x) from existing and/or new or modified heat transfer operations. The following sections of this rule apply to this project:

Regulation 9, Rule 3, Section 303: New or Modified Heat Transfer Operation Limits. This rule limits NO_x emissions from large (maximum heat input of 250 MMBtu/hr or more) new heat transfer operations to 125 ppm, adjusted to 3 percent O₂, when gaseous fuel is burned.

Regulation 9, Rule 7, Section 301: Emission Limits - Gaseous Fuels. This rule limits NO_x concentrations to 30 ppm dry, and CO concentrations to 400 ppm dry for boilers rated larger than 10 million BTU per hour.

Regulation 9, Rule 9, Section 301.3: Nitrogen Oxides from Stationary Gas Turbines - Emission Limits, General. Effective January 1, 1997, this rule will limit gaseous fired, SCR equipped, combustion turbines rated greater than 10 MW to 9 ppmv.

Regulation 10

Regulation 10, Rule 26, Gas Turbines - Standards of Performance for New Stationary Sources: This rule adopts the national maximum emission limits (40 CFR 60) which are 75 ppm NO_x and 150 ppm SO₂ at 15 percent O₂. Whenever any source is subject to more than one emission limitation rule, regulation, provision or requirement relating to the control of any air contaminant, the most stringent limitation applies.

BIOLOGY

FEDERAL

Endangered Species Act of 1973, Title 16 of the United States Code, section 1531 et seq., Title 50, Code of Federal Regulations 17.1 et seq., designates and provides for protection of threatened and endangered plant and animal species and their habitat.

STATE

California Endangered Species Act of 1984, Fish and Game Code, sections 2050 through 2098, protects California's rare, threatened and endangered species.

Title 14, California Code of Regulations section 670.5 lists animals of California designated as threatened or endangered and section 720 defines waters of interest to the California Department of Fish and Game. Fish and Game authority to designate waters of interest is found in sections 1601 and 1603 of the Fish and Game Code.

Native Plant Protection Act of 1977, Fish and Game Code, section 1900 et seq., gives the California Department of Fish and Game the authority to designate rare, threatened and endangered plants.

California Environmental Quality Act (CEQA), Public Resources Code, section 21000 et seq., requires all governmental agencies to develop standards and procedures necessary to protect California's environmental quality and establish public procedures for identification of significant adverse environmental impacts. CEQA exempts certified state regulatory projects, including the California Energy Commission powerplant site certification program, from specific procedural requirements; these programs remain subject to other provisions of CEQA, such as the policy of avoiding significant adverse effects on the environment where feasible.

Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines), Title 14 California Code of Regulations, section 15065 ("Mandatory findings of significance") requires that a reduction in number of a rare, threatened, or endangered plant or animal species be considered a significant impact. Section 15380 ("Rare and endangered species") provides definitions and provides protection of unlisted species under the act if the species can be shown to meet the criteria for listing.

California Department of Fish and Game Operations Manual (section 1100, June 1987) provides the following policy statements and definitions relevant to the subject of mitigation:

"State policy mandates the preservation, protection, restoration, and enhancement of fish and wildlife, and recreational use thereof, to be in the public interest (FGC section 1301; Water Code section 11900)."

The California Department of Fish and Game's goals in implementing this policy are to prevent further diminishment of fish and wildlife by land and water development projects, to restore fish and wildlife whenever possible, and to assure that necessary fish and wildlife preservation measures are carried out with other project features.

CULTURAL

FEDERAL

The following requirements apply to those portions of projects in which cultural resources are encountered that may be eligible for inclusion in, have been nominated to, or are already listed in the National Register of Historic Places:

- National Historic Preservation Act of 1966 (NHPA), Title 16, United States Code, section 470 et seq. (amended 1976 by Public Law 94-422 and Public Law 94-458): established a national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the U.S.
- Public Law 101-601 "Native American Graves Protection and Repatriation Act" (1990): This law defines "cultural items", "sacred objects", and "objects of cultural patrimony"; establishes an ownership hierarchy; provides for review; allows excavation of human remains but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.

STATE

- California Environmental Quality Act (CEQA), Public Resources Code, section 21000, et seq.: Requires analysis of potential environmental impacts of projects and requires application of appropriate mitigation measures.
- CEQA Guidelines (as amended May 10, 1980), Title 14, California Code of Regulations, section 15000, et seq.: Specifically, CEQA Appendix G (j), states that a project will normally have a significant effect on the environment if it will "...disrupt or adversely affect an archaeological site except as part of a scientific study...".
- Penal Code, section 622 1/2: Sets the penalties for damage or destruction of cultural resources, whether situated on private lands or within any public park or place.
- Public Resources Code, section 5097.5: Any unauthorized removal of archaeological remains or sites located on public land is a misdemeanor.

LOCAL

In 1992 the planning department for the City/County of San Francisco prepared a draft element for the City/County General Plan for the preservation of historic landmarks. This policy has been completed but must undergo an environmental impact assessment and preparation of appropriate documents before it can be acted upon by the Planning Commission and Board of Supervisors. There is no firm time frame for adoption of the proposed preservation element due

to budget constraints. Until it is adopted, the City/County staff will continue to use existing plans and policies (Paez 1995).

San Francisco City/County: South Bayshore Regional Plan

In 1994 San Francisco City/County up-dated its Planning Code, including the South Bayshore Region, which applies to the proposed project area at Hunters Point. The following excerpts are taken from the section on resource conservation for the plan area:

- San Francisco Planning Code, Article 10 specifies county-wide policies for preservation of historical, architectural, and aesthetic landmarks; designates landmarks and historical districts; reviews and makes decisions on applications for construction, alteration, and demolition pertaining to landmark sites and historical districts.
 - Section 101.1 (b)(7): States that landmarks and historic buildings are to be preserved.

EFFICIENCY

Compliance with Federal Cogeneration Standards.

The Warren-alquist Act grants certain benefits to powerplants which qualify as cogeneration facilities and sets forth specific standards of energy use which must be met by a project in order to qualify. See, Public Resources Code section 25134.

FACILITY DESIGN

FEDERAL

- Title 29, Code of Federal Regulations, part 1910, Occupational Safety and Health Standards. Part 1926, National Safety and Health regulations for construction.
- Title 40, Code of Federal Regulations, section 112 et seq., US Environmental Protection Agency (EPA), requires a Spill Prevention Control and Countermeasure (SPCC) plan for facilities storing oil in excess of 660 gallons in any single above ground tank; 1,320 gallons in aggregate tanks above ground; and 4,200 gallons below ground.

STATE

- Board of Registration for Professional Engineers, Rule 145 -- Prohibits a California Registered Engineer from working outside the scope of the engineer's area of professional competence.
- California Business and Professions Code section 6704, et seq.; sections 6730 and 6736. Requires state registration to practice as a civil, electrical, mechanical or structural engineer in California.
- California Public Utilities Commission (CPUC) General Order (GO) 95 prescribes standards for overhead electric line systems.
- Labor Code section 6500 et seq. Requires a permit for construction of trenches or excavations five feet or deeper into which personnel have to descend. This also applies to construction or demolition of any building, structure, false work, or scaffolding that is more than three stories high or equivalent.
- Regulations of the following state agencies as applicable:
 - Department of Labor and Industry Regulations;
 - Bureau of Fire Protection;
 - Department of Public Health; and
 - Department of Water Resources.
- Title 8, California Code of Regulations, section 1500 et seq., section 2300 et seq., and section 3200 et seq. These regulations describe general construction safety orders, industrial safety orders, and work safety requirements and procedures.
- Title 8, California Code of Regulations, section 450 et seq., and section 750 et seq. Adopts American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code and other requirements for unfired and fired boilers.

- Title 24, California Code of Regulations, parts 2,3,4,5,6,7 -- Prescribes general building standards: Part 2, California Building Code 1992 (CBC), incorporates the 1991 Uniform Building Code—(UBC); Part 3, California Electrical Code (CEC), incorporates the 1990 National Electrical Code—(NEC); Part 4, California Mechanical Code (CMC), incorporates the 1991 Uniform Mechanical Code—(UMC); Part 5, California Plumbing Code (CPC), incorporates the 1991 Uniform Plumbing Code—(UPC); Part 6, Special Building Regulations (SBR).

LOCAL (SAN FRANCISCO CITY AND COUNTY) ORDINANCES

- City and County of San Francisco Ordinances, including the latest adopted San Francisco Electrical and Mechanical codes.
- San Francisco Building Code prescribes the city and county building regulations. Section 101 adopts the 1991 UBC, and the 1992 CBC, including UBC/CBC Chapter 7, requirements for Group B occupancies and UBC/CBC part IV requirements based on Types of Construction, Part V Engineering Regulations, Part VI Detailed Regulations, Chapter 67 Combustion Engines and Gas Turbines, and Chapter 70, Excavation and Grading all as modified by the San Francisco Building Code.

INDUSTRY STANDARDS

The industry standards used for design, fabrication, and construction are the industry standards, including all addenda, in effect as stated in equipment and construction purchase or contract documents. Where no other standard governs, the CBC will be used. In cases where conflicts between cited standards occur, the requirements of the more stringent shall govern. A summary of the standards follows:

General Requirements

- Design and placement of structural concrete follow the recommended practice of the American Concrete Institute (ACI), the 1992 CBC, and the Concrete Reinforcing Steel Institute (CRSI).
- Design, fabrication, and erection of structural steel follow the American Institute of Steel Construction Code (AISC) and the 1992 CBC.
- Design and erection of masonry materials follow the ACI Building Code Requirements for Masonry Structures and the 1992 CBC.
- Design of roof coverings conforms to the requirements of the National Fire Protection Association (NFPA) and Factory Mutual.

- Fabrication and erection of grating follow applicable standards of the National Association of Architectural Metals Manufacturers (NAAMM).
- Field and laboratory testing procedures for materials and material specifications generally follow the American Society for Testing and Materials (ASTM) specifications, and the American National Standards Institute (ANSI), unless noted otherwise.
- Preparation of metal surfaces for coating systems follows the specifications and standard practices of the Steel Structures Painting Council (SSPC) and National Association for Corrosion Engineers (NACE), and the specific instructions of the coatings manufacturer.
- Steel components for metal wall panels and roof decking conform to the American Iron and Steel Institute (AISI) Specifications for the Design of Cold-Formed Steel Structural Members.
- Welding procedures and qualifications for welders follow the recommended practice and codes of the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable.

Specific Requirements

The following list is a representative summary of an extensive list of industry standards provided by the Applicant for use on the SFEC project. For a complete list of the industry standards, please refer to appendixes A through D of the AFC.

- American Association of State Highway and Transportation Officials, "A Policy on Geometric Design of Highways and Streets," 1990.
- American Concrete Institute (ACI).
 - Building Code Requirements for Reinforced Concrete (ACI 318-89).
 - Building Code Requirements for Structural Plain Concrete (ACI 318.1-89).
 - Code Requirements for Nuclear Safety Related Structures, Appendix B (Steel Embedments only), (ACI 349), except that anchor bolts will be embedded to develop their yield strength.
- American Institute of Steel Construction (AISC),
 - Specification for Structural Steel Buildings-Allowable Stress Design and Plastic Design, June 1, 1989.
 - Allowable Stress Design Specification for Structural Joints Using ASTM A325 or A490 Bolts.
- American Iron and Steel Institute (AISI), Specification for the Design of Cold Formed Steel Structural Members, Parts 1 and 2, 1986.

- American Society of Mechanical Engineers (ASME)
 - ASME Boiler & Pressure Vessel Codes,
 - Section I - Rules for Construction of Power Boilers
 - Section II - Material Specification
 - Section V - Nondestructive Examination
 - Section VIII - Rules for Construction of Pressure Vessels
 - Section IX - Welding and Brazing Qualifications
 - Performance Test Code (PTC) PTC- 4.4 - Gas Turbine Heat Recovery Steam Generators (HRSG)
 - PTC-22 - Gas Turbine Power Plants
 - PTC-23 - Atmospheric Water-Cooling Equipment.
- American National Standards Institute (ANSI)
 - ANSI B31.1 - Power Piping Code
 - ANSI B31.2 - Fuel Gas Piping Code
 - ANSI B31.3 - Chemical Plant & Petroleum Refinery Piping Code
 - ANSI C5.1 (NFPA 78) - Lighting Protection Code
 - ANSI B16.25 - Butt-Welding Ends
- American Petroleum Institute (API) Standard 650, Welded Steel Tanks for Oil Storage, 1988.
- American Welding Society (AWS) "Structural Welding Code" (AWS D1.1-92).
- American Society for Testing and Materials (ASTM).
- American Water Works Association (AWWA).
 - Standards for Welding Steel Tanks, (AWWA D100-84).
 - Standards for Prestressed Concrete Pressure Pipe, Steel Cylinder Type for Water and Other Liquids, (AWWA C301-84).
 - Standards for Reinforced Concrete Water Pipe--Noncylinder Type, Not Prestressed, (AWWA C302-87).
- Applied Technology Council, Tentative Provision for the Development of Seismic Regulations for Buildings, (ATC-3-06), Amended December 1984.
- California Energy Commission, Recommended Seismic Design Criteria for Non Nuclear Power Generating Facilities in California (June 1989), CEC Pub. No. P700-88-001.
- International Conference of Building Officials, Uniform Building Code (UBC), 1991 Edition.

- International Standards Organization (ISO) 3945-1985 "Mechanical Vibration of Large Rotating Machines with Speed Range from 10 to 200 revs/sec -- Measurement and Evaluation of Vibration Severity In Situ."
- Institute of Electrical and Electronic Engineers - IEEE - Standards for electrical equipment.
- National Fire Protection Association (NFPA):
 - NFPA-24, Standard for the Installation of Private Fire Service Mains and their Appurtenances; and
 - NFPA-850, Recommended Practice for Fire Protection for Electric Generating Power Plants.
- Structural Engineers Association of California, "Recommended Lateral Force Requirements and Tentative Commentary", 1990 Recommendation and Commentary.
- Structural and Miscellaneous Steel.
 - ASTM A569-Specifications for Steel Carbon (0.15 maximum percent) Hot-Rolled Sheet and Strip, Commercial Quality.
 - ASME/ANSI STS-1-1986--Steel stacks, except for circumference stiffening which will be in accordance with British Standard 4076--1978 and except that seismic design will be in accordance with UBC 1991.
- International Association of Plumbing and Mechanical Officials
- National Electric Manufacturers Association
- National Fire Protection Association Standards (NFPA), 1992
- Uniform Mechanical Code (UMC)
- Uniform Plumbing Code (UPC)
- Steel Structures Painting Council Standards (SSPC)
- Tubular Exchanger Manufacturers Association (TEMA)

The industry standards used for design, fabrication, and construction will be the industry standards, including all addenda, in effect as stated in equipment and construction purchase or contract documents. Where no other standard governs, the UBC will be used.

The codes and standards proposed by the project owner are appropriate for use on the San Francisco Cogeneration Project. If there are conflicts, the latest edition and the more stringent one shall be used.

GEOLOGICAL HAZARDS

- Title 24, California Code of Regulations, Part 2, known as the California Building Code 1992 (CBC) (incorporates the 1991 Uniform Building Code-UBC) for review, permitting, and inspection of grading and structures (Appendix Chapter 70 and Chapter 29 respectively).
- California Environmental Quality Act (CEQA) Guidelines, Title 14, California Code of Regulations, section 15002 (a)(3) states that "the basic purpose of CEQA is to prevent significant avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible."

HAZARDOUS MATERIALS

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, 42 United States Code, section 9601 et seq. established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of hazardous or extremely hazardous substances. The Act requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such substances are stored or handled at a facility. The requirements of this Act, as well as additional requirements for handling and storage of acutely hazardous substances, are reflected in Section 25500 et seq. of the California Health and Safety Code.

The National Fire Code, Article 85A provides design specifications and procedures applicable to furnaces and boilers fired with fuel oil, natural gas, and other similar gaseous and liquid fuels. This code is designed to provide measures for prevention of explosions in fuel fired equipment such as the Heat Recovery Steam Generator (HRSG) associated with this project.

The safety requirements for pipeline construction vary according to the population density and land use which characterize the surrounding land. The pipeline classes are defined as follows (Title 49, Code of Federal Regulations, Part 192):

- Class 1: Pipelines in locations with ten or fewer buildings intended for human occupancy.
- Class 2: Pipelines in locations with more than ten but fewer than 46 buildings intended for human occupancy. This class also includes drainage ditches of public roads and railroad crossings.
- Class 3: Pipelines in locations with more than 46 buildings intended for human occupancy, or where the pipeline is within 100 yards of any building or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (the days and weeks need not be consecutive).

The natural gas pipeline will be designed for Class 3 service and will meet California Public Utilities Commission General Order 112-D and 58-A standards as well as various PG&E standards. The natural gas pipeline must be constructed and operated in accordance with the Federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192:

- Title 49, Code of Federal Regulations, Part 190 outlines the pipeline safety program procedures;
- Title 49, Code of Federal Regulations, Part 191, Transportation of Natural and Other Gas by Pipeline; Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days;
- Title 49, Code of Federal Regulations, Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use which characterize the surrounding land. This part contains regulations governing pipeline construction which must be followed for Class 2 and Class 3 pipelines.

The steam pipeline will be designed according to the ASME/ANSI B31.1 Power Piping Code. This Code also provides requirements for the fabrication, erection, examination, and testing of steam pipelines, and these requirements will be followed at the SF Energy facility. ASTM standards are followed in welding; bellow type expansion devices will not be used. All welded joints that are buried are subjected to X-ray examination and the entire steam pipeline is tested with water upon completion.

STATE

Hazardous materials management is addressed in Section 25500 et seq. of the California Health and Safety Code. These regulations establish the requirement for registration of any business (Business Plan) which handles acutely hazardous materials (AHM) in quantities equal to or greater than the threshold planning quantities (TPQ) listed in Appendix A of Title 40 of the Code of Federal Regulations, Part 355. Note that the California state list of acutely hazardous materials is the same as the federal list of extremely hazardous substances. Section 25500 et seq. also requires the preparation of a Risk Management and Prevention Program (RMPP), if it is determined that there is a significant likelihood that the use of the materials may pose an AHM accident risk.

California Health and Safety Code, section 25500 et seq. requires the preparation of a Business Plan which addresses in detail emergency planning and response aspects of the storage and use of hazardous chemicals at a facility.

California Health and Safety Code section 41700 requires that:

"No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to

any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

LOCAL AND REGIONAL

Local regulations incorporate the requirements of San Francisco Public Works Code Article 20, the Uniform Fire Code (UFC), and the Uniform Building Code (UBC).

The San Francisco Hazardous Materials Ordinance, Article 21 of Part II, Chapter 5 (Health Code) of the San Francisco Municipal Code, requires that businesses handling any hazardous material or mixture containing a hazardous material at or above certain specified amounts or types must obtain and keep current a Hazardous Materials Certificate of Registration and implement a Hazardous Materials Plan which is submitted with the registration application. The Hazardous Materials Plan is to contain information on: the hazardous materials used including chemical or common name and federal hazard category; the hazardous wastes generated including waste category number and, if requested by the Director of Public Health, general chemical and mineral composition; the amounts stored, locations, and container types; scale map of the business establishment; and a list of hazardous materials stored in underground storage tanks. An emergency response plan is to be included specifying immediate notification of local emergency rescue personnel; mitigation procedures; evacuation plans and procedures; and information on the presence of emergency equipment. Other information to be included in the Hazardous Materials Plan include employee training; reduction program for the use of hazardous materials and generation of hazardous waste; an Acutely Hazardous Materials (AHM) Registration Form for each AHM stored or handled in an amount greater than or equal to the threshold planning quantity specified in Title 40 of the Code of Federal Regulations, Part 355, Appendix A; and labeling of hazardous materials containers.

The San Francisco Department of Public Works requires that applicants for building permits for projects involving disturbance of 50 cubic yards of soil or more must comply with Article 20 of the San Francisco Public Works Code. This Article requires preparation of a site history, soil sampling on the property, and analysis of the soil samples to determine the presence of hazardous wastes. Specifically, this Article provides for analysis of the following: inorganic persistent and bioaccumulative¹ toxic substances, volatile organic toxic pollutants, polychlorinated biphenyls (PCBs), Ph levels, flammability, cyanides, sulfides, methane and other flammable gases, and any other hazardous substances designated by the Director of Public Works, the Director of Public Health, or the certified laboratory conducting the analyses. If hazardous substances are present in soil the applicant must submit a site mitigation report with a determination as to whether significant environmental or health and safety risks exist, and recommended mitigation measures.

¹ Bioaccumulative substances are substances that tend to concentrate in biological tissues, especially in fat.

The California Fire Code contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. These requirements are generally similar to those contained in the Health and Safety Code. However, the California Fire Code has a unique requirement for secondary containment, monitoring, and treatment of toxic gases emitted through emergency venting. This requirement is generally restricted to acutely toxic materials.

The California Building Code (UBC) contains requirements regarding the storage and handling of hazardous materials which address seismic design of structures and restricts the issuance of occupancy permits until the Applicant has demonstrated compliance with Section 25500 et seq. of the Health and Safety Code. In addition, storage tanks will also be designed in accordance with American Water Works Association requirements as described in section D-1000, and standards of the American Society of Mechanical Engineers (ASME), Section VIII, Division 1.

LAND USE

The cogeneration plant is affected by the land use plans, policies, and restrictions of a number of local, state, and federal agencies: the Bay Conservation and Development Commission (BCDC), the State Lands Commission, the Metropolitan Transportation Commission (MTC), the San Francisco Redevelopment Agency, the City and County of San Francisco and the Port of San Francisco.

State Lands Commission

The Port site is within bay tidelands that fall under the administrative jurisdiction of the State Lands Commission (SLC). However, the Burton Act (1968) delegates this administrative jurisdiction to the San Francisco Port Commission and Board of Supervisors. Before any development can occur in these "trust" lands, the Port Commission must enter into a lease agreement with the project developer.

To approve a lease to use lands within its public trust authority, the Port Commission must make the following findings:

- That the lease, contract or other instrument is in accordance with the terms of the grant or grants under which title to the tide or submerged lands in question is held;
- That the proceeds of such lease, contract, or other instrument shall be deposited in an appropriate fund expendable only for statewide purposes authorized by a legislative grant;
- That such lease, contract, or other instrument is in the best interest of the State².

The proposed cogeneration plant will use wastewater from the Southeast Water Pollution Control Plant (WPCP), thus diverting from the San Francisco Bay discharges that could harm the Bays delicate ecosystem. This is consistent with the provision that " ... such development ... be in the public interest..." (see footnote 2).

² Chapter 1333 of the California Code of Regulations empowers the San Francisco Port Commission to "... grant ... franchises thereof for limited periods not exceeding 66 years for wharves and other public uses and purposes and the lease of said lands, facilities, or any part thereof for limited periods not exceeding 66 years, and ... Such lease or leases, franchises ... shall be for purposes consistent with the trusts upon which the lands are held by the state and with the requirements of commerce or navigation, or if the Harbor Commission of the City and County of San Francisco determines that *any portion of the transferred lands is not required for the foregoing uses described in this section*, such as lease or leases ... *may be for the purposes of such development and use as the commission finds to be in the public interest ...*" (emphasis added).

Metropolitan Transportation Commission **Maritime Element:** This is the same document as the Seaport Plan. The intended purpose of land use policy in the Seaport Plan is linked much more closely to the San Francisco Bay Plan.

Bay Conservation and Development Commission

Waterfront Special Area Plan: In the section of the Waterfront Special Area Plan entitled "India Basin" the following policies that affect land use decisions are identified:

BCDC-1³: Policy 1: "The India Basin area should be developed as a major waterfront park in accordance with the recreation and open space plan of the City of San Francisco."

Port site: This policy is not applicable to the powerplant at this location.

Transmission Lines: This policy is not applicable to the transmission lines at the proposed location.

BCDC-2: Policy 2: "Limited development, preferably Bay-oriented commercial recreation, should be permitted on the shoreline, provided it is incidental to public access and water-related recreation and does not obstruct public access."

Port site: Since shoreline access is not available at this location, the powerplant at this site will have no impact on commercial activities serving nearby shoreline access. Therefore, this policy is not applicable to this portion of the project.

Transmission Lines: The transmission lines will have no impact on commercial activities serving shoreline access points. The policy is therefore, not applicable to these structures at either site.

Power Plant Non-Siting Study: The Power Plant Non-Siting Study does not contain goals, objectives, policies, or implementation measures with which this project must comply. In fact, its primary purpose is to serve as a technical study that analyzes the appropriateness and feasibility of locating large powerplants (i.e. thermal power plants that do not use cogeneration technology) along the shore in the Bay region.

In addition, the maritime use restrictions contained within these documents serve to trigger a consistency review mandated by the Federal Coastal Zone Management Act. This is usually conducted by the BCDC where non-maritime uses may impact maritime activities. Since cogeneration plants below 300 MW are exempted from the maritime use restrictions the power

³ Generally, BCDC - # refers to item # in a document prepared under the authority of the Bay Conservation and Development Commission. Similarly, CCSF refers to the City and County of San Francisco; PSF, Port of San Francisco; CEQA, the California Environmental Quality Act; and DCCSF, draft City and County of San Francisco.

plant cannot interfere with maritime uses. A consistency determination by the BCDC is, therefore, unnecessary.

Local and Local Joint Powers Agencies City and County of San Francisco, San Francisco Master Plan:

In the Commerce and Industry Element the following policies that affect land use decisions are identified:

CCSF-1 (City and County of San Francisco-1): Objective 5, Policy 11: "Pursue permitted non-maritime development on port properties."

The proposed cogeneration plant is clearly a non-maritime use. The site exists within Port Authority jurisdiction. The proposed plant would be consistent with this policy.

The proposed transmission lines (electrical, natural gas, steam, and waste water) will be constructed underground and are ancillary to the proposed plant and, therefore, are consistent with this policy.

In the Recreation and Open Space Element the following policies that affect land use decisions are identified:

CCSF-2: Objective 2, Policy 3: "Preserve sunlight in public open spaces."

Port site: The plant at the Port site will have no impact on open space/wetland areas located approximately 1,000 feet to the south. The plant at the Port site will be consistent with this policy.

Transmission Line: Since the transmission line will be buried underground, this policy is not applicable to these facilities.

CCSF-3: Objective 3, Policy 1: "Assure that new development adjacent to the shoreline capitalizes on its unique waterfront location, considers shoreline land use provisions, improves visual and physical access to the water, and conforms with urban design policies."

Port site: The plant at this site is partially consistent with this policy for the reasons stated:

- It does not "capitalize on the unique waterfront location."⁴ It does not require a waterfront location, nor does it benefit from improved waterfront access.

⁴ The proposed Port site itself is not immediately adjacent to the water but is located at a distance of approximately 1,000 feet west of the Bay. Because the proposed Port site is part of a single parcel that is adjacent to the Bay, shoreline standard land use planning practices would consider this site as existing adjacent to the Bay. However, a representative of the Port of San Francisco has advised Staff that the Port site should not be considered adjacent to the Bay.

- It does "consider shoreline land use provisions" in that the port site is zoned M-2 (heavy industry), the designation necessary for a use of this intensity and, as a cogeneration plant, is exempt from the highly restrictive land use designations of the San Francisco Bay Plan and the Seaport Plan.
- While it does not "improve visual and physical access to the water" it, also, does not default from these features. In fact, existing uses, i.e., grain storage facilities and large cargo loading cranes already clutter visual access. The proposed powerplant will add, incrementally to that clutter.
- It does conform with most urban design policies.

Transmission Lines: Since the transmission lines are to be buried underground these facilities will be consistent with the policy.

In the Urban Design Element the following policies that affect land use decisions are identified:

CCSF-4: Objective 1, Policy 1: "Recognize and protect major views in the city, with particular attention to those of open space and water."

CCSF-5: Objective 2, Policy 7: "Recognize and protect outstanding and unique areas that contribute in an extraordinary degree to San Francisco's visual form and character."

Port site: The Port site does not offer an area of uniqueness that needs to be protected. This policy is not applicable to the Port site.

Transmission Lines: Since the transmission lines are to be buried underground, these facilities will be consistent with this policy.

CCSF-6: Objective 3, Policy 1: "Promote harmony in the visual relationships and transitions between new and older buildings." This policy is addressed in the Section of the report entitled Visual Resources.

CCSF-7: Objective 3, Policy 4: "Promote building forms that will respect and improve the integrity of open spaces and other public areas."

Port site: The power plant at the Port site will not impact open space or public areas. The policy is not applicable to this site.

Transmission Lines: Since the transmission lines are to be buried underground, these facilities will be consistent with this policy.

CCSF-8: Objective 3, Policy 6: "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction."

CCSF-9: Objective 4, Policy 1: "Protect residential areas from the noise, pollution and physical danger of excess traffic."

CCSF-10: Objective 4, Policy 15: "Protect the livability and character of residential properties from the intrusion of incompatible new buildings."

Port site: Residential areas are at least one-half mile from the powerplant site. If it were the only heavy industrial use in the vicinity, the powerplant at this site could be considered incompatible with residential areas, and even those existing more than one-half mile away. However, there are other uses in the vicinity that are just as intense. The Port property on which the powerplant site is a portion includes the Port's consolidated containerized cargo operation and the intermodal transfer facility, i.e., rail yards. In addition, a debris-concrete operation has been approved by the City and County of San Francisco for a portion of the property to the south of the powerplant site. Further, a major U.S. Postal Service distribution facility exists to the west, across Cargo Way. The powerplant at the port site will be consistent with this policy.

Transmission Lines: Since the transmission lines are to be buried underground, these facilities will be consistent with this policy.

In the Environmental Protection Element the following policies that affect land use decisions are identified:

CCSF-11: Objective 3, Policy 2: "Promote the use and development of shoreline areas consistent with the Comprehensive Plan and the best interests of San Francisco. "

Port site: The Master Plan and other regulatory documents with which it must be consistent (San Francisco Bay Plan, Seaport Plan, South Bayshore Plan, Waterfront Special Area Plan) designate the site for maritime use only with a more restrictive designation of "Port Priority Use" imposed to comply with the Federal Coastal Zone Management (Federal) and McAteer-Petris (state) Acts. In addition, the Draft Waterfront Land Use Plan identifies the powerplant portion of the port property as being surplus to port needs and indicates that a cogeneration plan at this location would be an appropriate use. Proposed amendments to the Seaport Plan, issued on January 10, 1995 by the Seaport Plan Advisory Committee, recommends removal of the ten acre cogeneration site from the Port Priority Use designation. Once adopted by the MTC these amendments will render moot any concern that the proposed cogeneration site will interfere with or otherwise impact maritime uses at Piers 94/96.

Transmission Lines: Since the transmission lines are to be buried underground, these facilities will be consistent with this policy.

CCSF-12: Objective 4, Policy 4: "Promote the development of nonpolluting industry and insist on compliance of existing industry with established industrial emission control regulations.

CCSF-13: Objective 7, Policy 1: "Preserve and add to public open space in accordance with the objectives and policies of the Recreation and Open Space Plan."

This policy is a restatement of those identified as CCSF-2, 3, 4, 5.

In the Central Waterfront Element the following policies that affect land use decisions are identified:

CCSF-14: Objective 1, Policy 1: "Encourage the intensification and expansion of industrial and maritime uses."

Innes site: The Innes site is not within the central waterfront plan.

Port Site: The powerplant at this site will be consistent with this policy.

Transmission Lines: This policy is not applicable to the proposed transmission lines.

CCSF-15: Objective 1, Policy 3: "Promote new development which has minimal adverse environmental consequences. Assure that adverse environmental impacts of new development are fully mitigated." This policy appears directed at local decision makers and is not applicable to this project. However, the Energy Commission, acting on behalf of local decision makers, will ensure that all adverse impacts are mitigated to the fullest extent feasible.

CCSF-16: Objective 3, Policy 1: "Promote industrial expansion through maximizing and intensifying the use of existing facilities and properties, rehabilitating older industrial structures, and developing vacant land with industrial uses."

Port site: The powerplant at this site will be consistent with this policy because it does represent an intensification of the use of existing industrially developed land.

Transmission Lines: The transmission lines are ancillary to the power plant and are, therefore, consistent with this policy.

CCSF-17: Objective 4, Policy 4: "Reserve land adjacent to the waterfront as required for maritime support use."

Port site: Currently, the proposed site is reserved for maritime support uses. The proposed cogeneration plant is not considered a maritime use by the Seaport Plan. However, the powerplant non-siting study exempts cogeneration plants from these restrictive designations. In addition, the Port of San Francisco in its Draft Waterfront Land Use Plan, has declared the proposed site as surplus to maritime needs and recommends changing its designation to allow specified non-maritime uses of which a cogeneration plant is one. Therefore, the powerplant at this site is consistent with the requirements of the policy.

Transmission Lines: The transmission lines are ancillary to the power plant and are, therefore, consistent with this policy.

CCSF-18: Objective 5, Policy 1: "Promote the retention and improvement of existing commercial activities that support local residential, industrial, maritime, and recreational uses."

Port site: The powerplant at this site appears to be consistent with this policy.

Transmission Lines: These are structures that are ancillary to a primary use that is consistent with this policy, i.e., a cogeneration plant. In addition, the transmission lines will be buried and will not hinder port-related activities at this site. Therefore, the transmission lines at this site will be consistent with this policy.

CCSF-19: Objective 5, Policy 4: "Encourage water-oriented commercial-recreation activities at public access points along the shoreline."

Port site: The powerplant at this site will have no impact on commercial activities. This policy, therefore, is not applicable to the powerplant at this site.

Transmission Lines: The transmission lines will have no impact on commercial activities at either location; therefore, this policy does not apply.

CCSF-20: Objective 10, Policy 1: "Reinforce the visual contrast between the waterfront and hills by limiting the height of structures near the shoreline. Relate the height and bulk of new structures away from the shoreline to the character of the topography and existing development."

CCSF-21: Objective 10, Policy 2: "Protect and create views of the downtown skyline and the Bay. Design and locate new development to minimize obstruction of existing views."

In the South Bayshore Element the following policies that affect land use decisions are identified:

CCSF-22: Objective 10, Policy 1: "Generally industry in the district⁵ should be attractive in appearance and labor intensive."

CCSF-23: Objective 10, Policy 3: "Adjustments in zoning boundaries should be considered and landscaped strips should be developed to separate industry from residences." This policy appears directed at local decision makers and is not applicable to this project. However, the Energy Commission, acting on behalf of local decision makers will ensure that residential areas will be separated from the project by landscaped buffers.

⁵ i.e., South Bayshore area.

CCSF-24: Objective 10, Policy 4: "Except for marine uses, the shoreline should not be used for industry."

Port site: This policy appears to be intended to apply to shoreline properties that are not within the jurisdiction of the Port of San Francisco because by nature and definition, maritime uses for which the port is responsible for introducing and maintaining are industrial. Therefore, this policy is not applicable to the powerplant at this location.

Transmission Lines: Since the transmission lines are underground, this policy is not applicable.

CCSF-25: Objective 12, Policy 2: "Parks are proposed along the length of the non-industrially used shoreline. In general there should be a new emphasis on the water as a visual asset and upon linking the district with the shore."

San Francisco Municipal Planning Code Section 101.1 Master Plan Consistency and Implementation was adopted by the voters of San Francisco in 1987. It established eight priority policies with which land development projects must be consistent if approval is to be granted. Basically, Proposition "M", as it was known, established the following:

- (a) "The Master Plan shall be an integrated, internally consistent and compatible statement of policies for San Francisco. To fulfill this requirement, after extensive public participation and hearings, the City Planning Commission shall in one action amend the Master Plan by January 1, 1988."
- (b) "The following Priority Policies '(CCSF-26 through CCSF-33)' are hereby established. They shall be included in the preamble of the Master Plan and shall be the basis upon which inconsistencies in the Master Plan are resolved:"

CCSF-26: Section 101.1(b)(1): "The existing neighborhood-serving retail uses be preserved and enhanced for future opportunities for resident employment in and ownership of such businesses enhanced."

CCSF-27: Section 101.1(b)(2): " The existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods."

Port site: The powerplant at the Port site will introduce a heavy industrial use into an area characterized by very intense industrial uses. It will not impact housing or affect neighborhood cultural and economic diversity. Therefore, the powerplant at this location will be consistent with this policy.

Transmission Lines: This policy is not applicable to these structures.

CCSF-28: Section 101.1(b)(3): "The City's supply of affordable housing be preserved and enhanced."

CCSF-29: Section 101.1(b)(4): " That commuter traffic not impede Muni transit service or overburden our streets or neighborhood parking."

CCSF-30: Section 101.1(b)(5): "That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development and that future opportunities for resident employment and ownership in these sectors be enhanced."

CCSF-31: Section 101.1(b)(6): "The City achieve the greatest possible preparedness to protect against injury and loss of life in an earthquake."

CCSF-32: Section 101.1(b)(7): "That landmarks and historic buildings be preserved."

CCSF-33: Section 101.1(b)(8): "That our parks and open space and their access to sunlight and vistas be protected from development."

CCSF-34: Section 226. Manufacturing and Processing

Section 226(p) indicates that a "steam power plant" is permitted within M-1, and M-2 zones.

Port site: The site at the port location is zoned M-2. The compliance with the Planning Code is addressed in CCSF-35.

Transmission Lines: Consistency with the zoning code is addressed in CCSF-36.

CCSF-35: Section 210.6. M-2 Districts: Heavy Industrial

These districts are the least restricted as to use and are located at the eastern edge of the City, separated from residential and commercial areas. The heavier industries are permitted with fewer requirements as to screening and enclosure than M-1 Districts, but many of these uses are permitted only as conditional⁶ uses or at a considerable distance from Residential Districts.

⁶ Land uses can be identified as being one of three types:

Permitted: Uses that are suited to the zoning classification applicable to the parcel (e.g., a single family house is permitted in a residential without further discretionary review as long as it complies with all zoning and building code requirements);

Not permitted: Uses that are clearly inappropriate for the zoning classification applicable to the parcel (e.g., an asbestos factory in a residential zone);

Conditional: Uses that may or may not be appropriate for the zoning classification based on its compatibility with surrounding land uses (e.g., a liquor store may be acceptable in a commercial zone but, the parcel in question is 250 feet away from a parcel zoned residential and containing an elementary school.

Port site: The powerplant at the port site is consistent with the following:

(a) Section 226(f) indicates that a "steam power" plant is permitted within the M-2 zone. Cogeneration is a form of steam generation in that its secondary process uses waste steam for other manufacturing processes.

Section 210.6 indicates that heavier industrial uses are permitted in an M-2 zone but that "...many of these uses are permitted only as conditional uses or at a considerable distance from Residential Districts."

Since the port site is about 0.5 miles from the nearest residential district, the powerplant at this site is consistent with these provisions.

Transmission Lines: Consistency with the zoning code is addressed in CCSF-36.

CCSF-36: Section 203. Effect On Certain Public Services

"This Code shall not limit the temporary use of any property as a public voting place, or the construction, installation or operation by any public agency or private corporation of any street, of any utility pipe, conduit or sewer, of any power, transmission, communication or transportation line or of incidental appurtenances to any of the foregoing when located in a street, alley, utility easement or other right-of-way."

Port site: This standard is not applicable to this site.

Transmission Lines: This standard appears to contain the only reference to secondary infrastructure such as natural gas pipelines, water pipelines, electric transmission lines. It does not address specifically the regulation of these structures. It does appear that such structures placed within public easements or rights-of-way, would be permitted. Therefore, the gas, steam, waste water, and electric transmission lines will be consistent with this standard.

CCSF-37: Section 295. Height Restrictions on Structures Shadowing Property Under the Jurisdiction of the Recreation and Park Commission states that:

(a) "No building permit authorizing the construction of any structure that will cast any shade or shadow upon any property under the jurisdiction of, or designated for acquisition by the Recreation and Park Commission may be issued except upon prior action of the City Planning Commission pursuant to the provisions of this ordinance, provided, however, that the provisions of this ordinance shall not apply to building permits authoring:

(1) Structures which do not exceed 40 feet in height.

- (2) Structures which cast any shade or shadow upon property under the jurisdiction of or designated for acquisition by the Recreation and Park Commission only during the first hour after sunrise and/or the last hour before sunset (Land Use Figure 13).
- (3) Structures to be constructed on property under the jurisdiction of the Recreation and Park Commission for recreational and park-related purposes.
- (4) Structures of the same height and in the same location as structures in place on June 6, 1984.
- (5) Projects for which a building permit application has been filed and either (i) a public hearing has been held prior to March 5, 1984 on a Draft Environmental Impact Report published by the Department of City Planning prior to July 3, 1984.
- (6) Projects for which a building permit application and an application or environmental evaluation have been filed prior to March 5, 1984 and which involve physical integration of new construction with rehabilitation of a building designated as historic either by the San Francisco Board of Supervisors as a historical landmark or by the State Historic Preservation Office as a State Historic Landmark, or placed by the United States Department of the Interior on the National Register of Historic Places and which are located on sites that but for separation by a street or alley are adjacent to such historic building."

Port site: This standard does not apply to the project at this site.

Transmission Line: This standard does not apply to these structures at either site.

CCSF-39: Section (III)(B): "Setbacks should be provided by all development except active maritime and other permitted water-dependent uses..." 30' minimum from publicly owned property used for recreation and park purposes; 15' minimum from all streets; and 15' from side yard.

Port site: This standard is not applicable to the powerplant at the site.

Transmission Line: This standard is not applicable to the transmission lines.

CCSF-40: Section (III)(C): "Building height is limited to maximum 40'"

Port site: This standard is not applicable to the powerplant at the site.

Transmission Line: This standard is not applicable to the transmission lines.

CCSF-41: Section (III)(G): "No property should be used wholly or principally for open and uncovered storage of supplies, semi-finished, or finished products, or other materials, unless such storage is dependent on a water-front (sic) location and is screened from view."

Port site: This standard is not applicable to the powerplant at the site.

Transmission Line: This standard is not applicable to the transmission lines.

Proposed Draft South Bayshore Plan: In the proposed South Bayshore Plan the following items that affect land use decisions are identified:

DCCSF-1: Objective 1, Policy 2: "Restrict toxic chemical industries and other industrial activities with significant environmental hazards from locating adjacent to or nearby existing residential communities."

Port site: The nearest residences to the Port site are 0.5 miles away; therefore, the project at this site would be inconsistent with this policy.

Transmission Lines: This policy is not applicable to the transmission lines.

Port of San Francisco

Draft Waterfront Land Use Plan

The Draft Waterfront Land Use Plan is intended to develop a long range plan to guide and regulate development on lands under the jurisdiction of the Port of San Francisco. Chapter 4 of the Draft Waterfront Land Use Plan establishes development standards to apply to cogeneration plants that may be sited within the Cargo Way Mixed Use Opportunity Area. These are as follows:

PSF-1: "State-of-the-art design for modern power facilities which should complement existing waterfront use to the greatest extent possible, including the nearby 1925 brick fire station."

PSF-2: "State-of-the-art environmental protection that mitigates emissions and other impacts on resident populations, wildlife habitats or other sensitive receptors in the South Bayshore area."

PSF-3: "Public benefits to the maximum extent, including open spaces and public access improvements and possibly public restrooms, maintenance support for Islais Creek open space improvements, public meeting rooms and parking."

In addition, the Draft Plan identifies development standards for any use to be located within the boundaries of the Cargo Way Mixed Use Opportunity Area. These are PSF-4 through PSF-7.

PSF-4: "New uses in the Cargo Way Opportunity Area should provide support for, and avoid negative impacts on the Islais Creek public access and open space improvements."

Port site: The power plant at this site will be in partial compliance with this standard in that it will not have negative land use impacts on the Islais Creek public access area.

Transmission Lines: This policy is not applicable to the transmission lines.

PSF-5: "Ensure that any use in these Opportunity Areas does not preclude nearby maritime activities, including rail service provided in the Intermodal Container Transfer Facility (ICTF) to the Port."

Port site: The Applicant has stated and the Port of San Francisco concurs that the Port site can accommodate the land requirements of the power plant, and it will not conflict with plans to expand the containerized cargo operation at piers 94/96 nor will it impair the activities or functions of the ICTF terminal along Cargo Way.

Transmission Lines: This policy is not applicable to the transmission lines.

PSF-6: "Maximize the economic benefit to the Port of San Francisco from long-term uses in these Opportunity Areas."

PSF-7: " Ensure that new uses do not interfere with rail service to the Port." Please see comments for PSF-5.

San Francisco Redevelopment Agency

Since the site is not located within the boundaries of any existing redevelopment plan, no inconsistencies exist.

NOISE

FEDERAL

The U.S. Environmental Protection Agency (EPA) has promulgated guidelines (EPA 1974) for the protection of outdoor activities against interference due to noise. These guidelines identify a day-night level (L_{dn}) of 55 dBA as adequate to provide this protection. These guidelines, however, do not carry the force of regulation. Existing state and local laws and ordinances will control.

Regulations supporting the Occupational Safety and Health Act of 1970 (29 C.F.R. § 1910 et seq.) stipulate 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 to which the worker is exposed (see NOISE: Table 1, below). OSHA regulations also dictate hearing conservation program requirements and workplace noise monitoring requirements.

NOISE: TABLE 1
Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: OSHA regulations

STATE

There are no state regulations governing off-site (community) noise. Rather, the 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 included to establish acceptable noise limits.

The California Environmental Quality Act (CEQA) requires that significant environmental impacts on the environment be identified, and that such impacts be eliminated or mitigated to the extent feasible. The CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix G, item (p)) define a significant effect on the environment as one which will "[i]ncrease substantially the ambient noise levels for adjoining areas...". The CEQA Guidelines further require that the impacts of the project be considered cumulatively in conjunction with those of other projects planned for the area (Cal. Code Regs., tit. 14, § 15065(c)).

The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, § 5095 et seq.) which set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

LOCAL

The Environmental Protection Element of the San Francisco Master Plan contains a section entitled "Transportation Noise," adopted on September 19, 1974 (Gitelman 1994). The plan deals solely with transportation noise impacts and contains no section dealing with fixed or stationary noise sources. In the absence of an applicable Master Plan Noise Element, one must rely on the applicable noise control ordinance for guidance, in this case the San Francisco Police Code.

The San Francisco Police Code (SF 1973) includes Article 29, Regulation of Noise (last updated on August 10, 1973), which regulates noise from fixed or stationary sources. This code covers both construction noise (S.F. Police Code, §§ 2907, 2908) and operational noise (S.F. Police Code, §§ 2909, 2915).

San Francisco Police Code section 2907 limits noise emanations from powered construction equipment to 80 dBA at a distance of 100 feet (except impact tools such as pile drivers and jackhammers, which must be muffled as practicable), and limits the noise from helicopters used in the construction to 85 dBA at 100 feet, for a maximum of two hours per day and four hours per week. Section 2908 prohibits any construction noise between the nighttime hours of 8 p.m. to 7 a.m. which exceeds ambient noise levels by 5 dBA at the nearest property line.

San Francisco Police Code section 2909 sets numerical limits for noise from fixed sources based on zoning districts; see NOISE: Table 2, below. If measured at the boundary between two zoning districts, the quieter limit prevails.

NOISE: TABLE 2
San Francisco Police Code -- Fixed Source Noise Levels

Zoning District	Time of Day	Sound Level (dBA)
R-1-D, R-1, R-2 (One- and two-family residential)	10 p.m. - 7 a.m.	50
	7 a.m. - 10 p.m.	55
R-3, R-3.5, R-4, R-5, R-3-C, R-3.5-C, R-4-C, R-5-C (Multi-family residential)	10 p.m. - 7 a.m.	55
	7 a.m. - 10 p.m.	60
C-1, C-2, C-3-O, C-3-R, C-3-G (Commercial)	10 p.m. - 7 a.m.	60
	7 a.m. - 10 p.m.	70
M-1 (Light industrial)	Any time	70
M-2 (Heavy industrial)	Any time	75

Source: San Francisco Police Code section 2909 (SF 1973)

San Francisco Police Code section 2915, General Noise Regulations, sets a limit on any noise emanations regardless of any other provisions in the code. This section states that it is unlawful to make, without justification, any unnecessary, excessive or offensive noise. Such noise is further defined (S.F. Police Code section 2901.11), in the absence of other specific maximum levels (such as those in section 2909), as any noise which exceeds the ambient noise level by 5 dBA or more.

ODOR

FEDERAL

The US-EPA does not regulate nuisance odors, only air toxics and criteria air pollutants.

STATE

The California Energy Commission, under the procedures prescribed in the California Environmental Quality Act (CEQA), is required as the lead agency to implement feasible mitigation measures or feasible alternatives identified during the project review for projects that will otherwise cause significant adverse impacts. To determine which odors cause a significant adverse effect, the Energy Commission uses the CEQA Guidelines, Title 14, California Code of Regulations, section 15000 et. seq., Appendix G, which states that "[a] project will normally have a significant effect on the environment if it will have a substantial, demonstrable negative aesthetic effect." The CEQA Guidelines Appendix I, continues with "[w]ill the project result in the creation of objectionable odors?" Therefore, consistent with the CEQA Guidelines, the Energy Commission will recommend feasible mitigation for significant nuisance odors caused by the project.

DISTRICT RULES

The Bay Area Air Quality Management District (District) controls nuisance odors from stationary sources such as the proposed project through the implementation of Rule 1-301, Public Nuisance, and Regulation 7, Odorous Substances:

Rule 1-301 Public Nuisance: "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." ^{7 8}

Regulation 7 Odorous Substances: "This places general limitations on odorous substances and specific limitations on certain odorous compounds. The limits of this regulation shall not be applicable until the Air Pollution Control Officer receives odor complaints from ten or more complainants within a 90-day period. A person shall not discharge any odorous substance which remains odorous after dilution with odor free air, or in excess of maximum allowable emissions concentrations."

⁷ This prohibition is also in Section 41700 of the California Health and Safety Code.

⁸ District staff has determined a "considerable number of persons" to be five or more confirmed separate complaints on a single day. Complaints are usually confirmed with the inspector and complainant detecting the odor together.

PALEONTOLOGICAL RESOURCES

STATE

The January 1, 1979 "Clean Water Grant Program for the Protection and Preservation of Cultural Resources" (California Water Resources Control Board, Rev 6-11) defines cultural resources to include paleontologic values and provides guidelines for preservation; it also summarizes other applicable legislation. Data recovery techniques are discussed in Section 7.4.

Other state laws pertaining to paleontologic resources include:

- California Environmental Quality Act (CEQA), Public Resources Code, § 21000, et seq.
- CEQA Guidelines (as amended May 10, 1980), Title 14, California Code of Regulations, § 15000. et seq: Specifically, CEQA Appendix G (j), states that a project will normally have a significant effect on the environment if it will "...disrupt or adversely affect a paleontological site except as part of a scientific study...". Also Appendix I asks whether the project will affect paleontologic resources.
- Penal Code, § 622.5: Sets the penalties for damage or destruction of cultural (includes paleontologic) resources, whether situated on private lands or within any public park or place.
- Public Resources Code, § 5097.5: Any unauthorized removal of paleontologic remains or sites located on public land is a misdemeanor.

PROFESSIONAL GUIDELINES AND CRITERIA

In early 1995 the Society for Vertebrate Paleontology (SVP), a national professional organization, distributed a revised set of draft guidelines and criteria which outline acceptable professional practices in the conduct of paleontologic resource surveys, data recovery, analysis, and curation (SVP 1995). During the time that the draft guidelines are undergoing review, many professional paleontologists in California have chosen to adhere to the proposed mitigation and monitoring requirements.

PUBLIC HEALTH

FEDERAL

- The Clean Air Act (42 U.S.C. §7401 et seq.). Section 109(b)(1) of the Clean Air Act (CAA) adopted in 1970 established authority for adoption of Ambient Air Quality Standards to protect the public from adverse health effects of air pollution. Section 110 required that states adopt State Implementation Plans to attain compliance (see next bullet) with these standards by 1982. The deadline for attainment of the standards for ozone and CO was subsequently delayed until 1987. The Clean Air Act was amended again in 1990. State implementation plans are now under review by EPA. The amendments also allowed additional time to achieve compliance with the CO and ozone standards. The amount of additional time allowed is dependent on the degree of non-attainment.
- National Ambient Air Quality Standards (40 C.F.R. Part 50). The U.S. Environmental Protection Agency has established ambient air quality standards for nitrogen dioxide (NO₂), ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM), and lead. Primary standards are designed to protect public health and secondary standards are intended to protect the public welfare from effects such as nuisance, soil deposition, and reduction in visibility. The Environmental Protection Agency classifies areas as attainment, unclassified, or non-attainment, depending on whether or not the monitored ambient air quality results demonstrate compliance (attainment), insufficient data available (unclassified), or non-compliance (non-attainment) with air standards.

STATE

- California Health and Safety Code section 39606 requires that the California Air Resources Board (ARB) adopt ambient air quality standards to protect the public health. Pursuant to this section, the ARB has adopted standards for O₃, CO, SO₂, PM₁₀, lead, hydrogen sulfide (H₂S), and NO₂. These standards are defined in Title 17, California Code of Regulations, section 70100 et seq.
- California Health and Safety Code section 40910 et seq. requires local air pollution control districts to adopt plans to maintain and achieve compliance with State and federal ambient air quality standards at the "earliest practicable date". These plans were to be submitted to the California Air Resources Board no later than December 31, 1990. The level of controls required for each pollutant depend on the amount of time required to reach attainment. In most non-attainment areas, districts are required to adopt permitting programs that result in no net increase in non-attainment pollutants or their precursors from new or modified stationary sources.

- California Health and Safety Code sections 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 section 41700 states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

LOCAL

- The rules and regulations of the Bay Area Air Quality Management District establish local requirements for compliance with State and Federal Ambient Air Quality Standards. These rules are incorporated in the State Implementation Plan in conjunction with other district rules. Emission reductions resulting from these rules form the basis of the plan by which the District proposes to achieve compliance with State and Federal Ambient Air Quality Standards. As part of its plan, the District has developed regulations limiting emissions from specific sources. These regulations prohibit the construction or operation of a source of pollution that would violate specific emission limits. Specific rules relating to public health include:
 - Regulation 1-301 (Public Nuisance). This regulation prohibits emissions in quantities that adversely affect public health, other businesses, or property.
 - Regulation 11, Rule 10 (Hexavalent Chromium Emissions From Cooling Towers). This rule limits hexavalent chromium emissions from cooling towers by eliminating the use of chromium-based chemicals for cooling water treatment.

SAFETY

FEDERAL

- Title 29, United States Code Section 651 et seq. (Occupational Safety and Health Act of 1970)
- Title 29, Code of Federal Regulations Sections 1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health regulations)
- Title 29, Code of Federal Regulations Sections 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

- Labor Code Section 142.3 (Authorizing the Occupational Safety and Health Board to establish safety and health standards)
- Labor Code Section 6300 et seq. (Establishing the responsibilities of the Division of Occupational Safety and Health)
- Title 8, California Code of Regulations, Section 450 et seq. (Applicable requirements of the Division of Industrial Safety, including Unfired Pressure Vessel Safety Orders, Construction Safety Orders, Electrical Safety Orders, and General Industry Safety Orders)

LOCAL

- San Francisco Fire Code
- San Francisco County Health Code Article 21

The commission uses the phrase "Safety and Health Program" to refer to the measures the Applicant will take to ensure compliance with applicable LORS during the construction or operation phases of the project. It requires both a Construction Safety and Health Program and an Operation Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. Below is a list of major items that are required to complete both Safety and Health Programs.

Construction Health and Safety Program:

- Injury and Illness Prevention Plan (Cal. Code Regs., tit. 8, § 1509);
- Fire Protection and Prevention Plan (Cal. Code Regs., tit. 8, § 1920);
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 1514 - 1522).

Operation Health and Safety Program:

- Injury and Illness Prevention Program (Cal. Code Regs., tit. 8, § 3203);
- Fire Prevention Plan (Cal. Code Regs., tit. 8, § 3221);
- Emergency Action Plan (Cal. Code Regs., tit. 8, § 3220);
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401 - 3411).

Construction

The Construction Safety Orders found in Title 8 of the California Code Regulations contain health and safety requirements promulgated by Cal/OSHA which are applicable to the construction phase of the project (Cal Code Regs., tit. 8 § 1500 et seq.). The various plans required by the regulations are incorporated in the project Construction Safety and Health Program. The major plans are:

- Construction Injury and Illness Prevention Program (IIPP) (Cal. Code Regs., tit. 8, § 1509);
- Construction Fire Protection and Prevention Plan (Cal. Code Regs., tit. 8, § 1920);
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 1514 - 1522);
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401 - 3411).

The Construction Safety Orders also contain additional specific worker safety and health requirements applicable to construction activities. In addition, the requirements of the Electrical Safety Orders (Cal. Code Regs., tit. 8 §§ 2299 - 2974) and Unfired Pressure Vessel Safety Orders (Cal. Code Regs., tit. 8, §§ 450 - 544) may be applicable to the project.

Operation

During the operation phase of the project, many of the Electrical Safety Orders and Unfired Pressure Vessel Safety Orders referenced under Construction above will be applicable. In addition, the Division of Industrial Safety has also promulgated regulations applicable solely to

operations. These are contained in the General Industry Safety Orders (Cal. Code Regs., tit. 8, § 3200 et seq.). The Applicant will incorporate these requirements into its Operation Safety and Health Program, the major elements of which include:

- Injury and Illness Prevention Program (Cal. Code Regs., tit. 8, § 3203)
- Emergency Action Plan (Cal. Code Regs. tit. 8, § 3220)
- Fire Prevention Plan (Cal. Code Regs., tit. 8, § 3221)
- Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401 - 3411)

Injury and Illness Prevention Program (IIPP): The Applicant provided a draft outline for an Injury and Illness Prevention Program (IIPP) (SFEC 1994). The outline contained sections on management responsibilities, hazard management, safe work practices, inspections, training and communication procedures. The final program will contain detailed information regarding procedures for identifying, evaluating, and preventing occupational safety and health hazards, establishing safe work practices and protective equipment requirements. The program will also include a discussion on proposed practices for safety inspections, injury and illness investigations, safety training, and record keeping. The Applicant will need to submit an expanded Operations Illness and Injury Prevention Program to Cal/OSHA for review and comment.

Cal-OSHA will review and provide comments on the IIPP as the result of an on-site consultation at the request of the applicant, during which a Cal-OSHA representative completes a physical survey of the site, and analyzes the work practices and points out those practices which are likely to result in illness or injury. The on-site consultation will give Cal-OSHA an opportunity to evaluate the applicant's IIPP and apply it directly to activities taking place on-site (Kleinerman 1994).

Emergency Action Plan: California Code of Regulations, title 8, Section 3220 contains the requirements for an Emergency Action Plan. The AFC and the data responses contain sufficient information to complete an emergency action plan, including a synopsis of the emergency operating procedures and preliminary information on fire procedure, ammonia handling, and emergency training and safety inspections. Under condition SAFETY-2, the Applicant submits a final Operations Emergency Action Plan to Cal/OSHA, after an on-site consultation, for review and comment (Kleinerman 1995).

Fire Protection Plan: California Code of Regulations, title 8, Section 3221 establishes the requirements for an Operation Fire Prevention Plan. The AFC contained information regarding the proposed fire protection plan, which discussed the following topics:

- On-site Fire Protection Systems including carbon dioxide extinguishing systems, preaction sprinkler systems, a dry pipe deluge system, hand-held fire extinguishers, and fire detection and alarm systems;
- Local Fire Protection Services (see Table 1).

The City of San Francisco Fire Department (CSFFD) agrees that the preliminary information provided by the applicant indicates that the project will meet the minimum requirements for fire protection (Gravanis 1994). Staff is proposing that the applicant submit a final Fire Protection Plan to the California Energy Commission Compliance Project Manager (CPM) and the CSFFD for review and approval to satisfy proposed Conditions of Certification 1 and 2.

Personal Protective Equipment Program: The purpose of the Personal Protective Equipment Program is to ensure that employers comply with applicable requirements for the provision and use of Personal Protective Equipment (PE), and to provide employees with the information and training necessary to implement the program.

Under California Code of Regulations, title 8, Sections 3380 - 3400, personal protective equipment is required whenever hazards are encountered which, due to process, environment, chemicals, or mechanical irritants, are capable of causing injury or impairment of body function as a result of absorption, inhalation, or physical contact. The project's operational environment will create potential situations where personal protective equipment may be required.

The Applicant's PE Program shall include a written policy on the use of PE and methods of communicating it to the employees, selection of the proper type of equipment, training of employees on the correct use and maintenance of the equipment, and enforcement of PE use. The Applicant's PE program shall also include the use of devices which provide respiratory protection, hearing conservation, eye protection, and head protection.

General Safety: In addition to the specific plans listed above, there are other requirements, some of which are referred to as "safe work practices", that are imposed by various worker safety LORS applicable to this project. These requirements are grouped as follows.

Lighting: To protect workers from inadequate lighting, Condition of Certification Safety-3 addresses the design and installation of exterior lighting.

Hazardous Materials Releases: System design and administrative procedures will reduce the likelihood of an accidental release of acutely hazardous materials that could affect workers.

Smoking: The Applicant shall not permit smoking in an area designated in the National Electrical Code (NEC) as Class I, Division 1 and 2. These locations are areas where ignitable concentrations of flammable gases or vapors exist or where volatile flammable liquids or flammable gases are handled, processed, or used. Signs restricting smoking in those areas of the project site will be posted to protect the facility and workers.

Lock-out/Tag-out: California Code of Regulations, title 8, Sections 2320.4, 2320.5, 2320.6, 2530.43, 2530.86, 3314, and 6003 address lock-out and tag-out safety practices and programs are effective accident prevention methods which reduce employee exposure to moving equipment, electrical shock, and hazardous and toxic materials. Lock-out is the placement of a padlock, blank flange, or similar device to ensure that the equipment will not be operated until the lock-out device is removed. Tag-out is the use of warning signs that caution personnel that equipment cannot be energized until the lock-out device is removed. Warning signs can also be used to alert employees about the presence of hazardous and toxic materials. The Applicant's lock-out/tag-out program shall include steps for applying locks and tags, steps for removing locks and tags, and employee training on lock-out/tag-out procedures.

Confined Spaces Entry Program: California Code of Regulations, title 8, Sections 5156 - 5159 address the minimal standards for preventing employee exposure to dangerous air contaminants and/or oxygen deficiency in confined spaces. A confined space is any space that limits the means of egress, which is subject to toxic or flammable contaminants or has an oxygen deficient atmosphere. Examples of confined spaces are silos, tanks, vats, vessels, boilers, compartments, ducts, sewers, pipelines, vaults, bins and pits. The Applicant shall take the following steps to ensure worker safety during work in confined spaces.

Prior to entering a confined space, site personnel will evacuate or purge the space and will disconnect lines that provide access for substances into the space. The air in the vessels will be tested for oxygen deficiency, and the presence of both toxic and explosive gases and vapors, before entry into the confined space is permitted. Lifelines or safety harnesses will be worn by anyone entering the confined space, and a person will be stationed outside in a position to handle the line and to summon assistance in case of emergency. Appropriate respirators will be available whenever hazardous conditions may occur.

Hot Work: Hot work is defined as any type of work that causes a spark and can ignite a fuel source. Examples of this type of work are welding, cutting and brazing. Prior to proceeding with hot work, the applicant will require a work authorization from the project's assigned Safety Officer. The control operator, in conjunction with the shift supervisor, will decide whether hot work is required on a job and if a work authorization will be required. Before hot work is undertaken, the area will be inspected, the job shall be posted and, depending on what is located in the area, additional safeguards may be implemented.

Contaminated Soils Cleanup: The Phase I and Phase II site assessment of the Port site indicates that there is soil contamination. Worker safety issues will be addressed in the site Health and Safety Plan which will be developed under the voluntary cleanup plan to be conducted under the auspices of DTSC Region 2.

Neighborhood Emergency Response Team Training: In the event of a major disaster such as an earthquake, San Francisco public health officials may not be able to respond to the plant in a timely manner. Plant staff shall be trained to handle plant and medical emergencies. Since a disaster will impact the surrounding community, the San Francisco Department of Public

Health recommends that the project owner participate in the San Francisco Fire Department Neighborhood Emergency Response Team (NERT) training. Condition of Certification HAZ-14 addresses this concern (Hernandez 1995).

SOCIOECONOMICS

LOCAL

Final Draft South Bayshore Plan (Proposal for Adoption January 1995)

The South Bayshore Plan relied heavily on citizen input during the seven-year period devoted to developing the plan. Citizen response to surveys identified specific goals and objectives for inclusion in the South Bayshore Plan. These specific goals and objectives are summarized into two broad needs:

- 1) The need to arrest the demographic decline of the local population, particularly African Americans, and improve its economic position by giving greater priority to job and business growth than to housing growth.
- 2) The need to harmonize different land uses, particularly elimination of conflict between housing and industry, elimination of truck traffic through residential and neighborhood commercial areas, and reduction of health and environmental hazards caused by waste water discharge and industrial byproducts.

Objective 1: Stimulate business, employment, and housing growth within the existing general land use pattern by resolving conflicts between adjacent industrial and residential areas.

Objective 5: Preserve and enhance existing residential neighborhoods.

Objective 9: Improve linkage between growth in South Bayshore industrial areas and employment and business needs of the Bayview Hunters Point community; **Policy 1:** Increase employment in local industries.

Objective 17: Support community economic development and revitalization through energy management and alternative energy technologies; **Policy 1:** Promote the South Bayshore as an area for implementing energy conservation and alternative energy supply initiatives.

Objective 17: Policy 2: Strengthen linkages between district energy planning efforts and overall community development goals and objectives.

San Francisco Municipal Planning Code, Section 101.1 Master Plan Consistency and Implementation

This plan was established by the voters of San Francisco in 1987. It established eight priority policies with which land development projects must be consistent if approval is to be granted. The following priority policies apply to Socioeconomic Resources.

(b)(2) That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods.

(b)(3) That the City's supply of affordable housing be preserved and enhanced.

City and County of San Francisco Master Plan, Urban Design Element

Objective 4, Policy 15: Protect the livability and character of residential properties from the intrusion of incompatible new buildings.

City and County of San Francisco Master Plan, Commerce and Industry Element

Objective 1 Policy 1: Encourage development which provides substantial net benefits and minimizes undesirable consequences. Discourage development which has substantial undesirable consequences that cannot be mitigated.

Objective 3 Policy 1: Promote the attraction, retention, and expansion of commercial and industrial firms which provide employment improvement opportunities for unskilled and semi-skilled workers.

Objective 3 Policy 2: Promote measures designed to increase the number of San Francisco jobs held by San Francisco residents.

Objective 3 Policy 3: Emphasize job training and retraining programs that will impart skills necessary for participation in the San Francisco labor market.

Draft Waterfront Land Use Plan.

Chapter 4 of the Draft Waterfront Land Use Plan establishes development standards to apply to cogeneration plants that may be sited within the Cargo Way Mixed Use Opportunity Area. The following standards apply to construction of the project at the Port site:

Public benefits to the maximum extent, including open spaces and public access improvements and possibly, public restrooms, maintenance support for Islais Creek open space improvements, public meeting rooms and parking.

Maximize the economic benefit to the Port of San Francisco from long-term uses in these Opportunity Areas.

SOIL AND WATER RESOURCES

FEDERAL

The Clean Water Act, Title 33, United States Code section 1251 et seq., requires any point source discharge into U.S. Waters to obtain a National Pollutant Discharge Elimination System (NPDES) permit. This requirement now includes stormwater discharges, both during construction and operation. In California, responsibility for administering the NPDES program has been delegated to the Regional Water Quality Control Boards. The San Francisco Bay Regional Water Quality Control Board will administer the National Pollutant Discharge Elimination System Permit for the proposed project. In addition, sections 304(g) and 307(c) of the Clean Water Act, Title 33, United States Code sections 1314(g) and 1317(c), and Title 40, Code of Federal Regulations, part 122.50 sets forth pretreatment standards for discharges to publicly owned wastewater treatment works.

Resource Conservation and Recovery Act, Title 40, Code of Federal Regulations, sections 260 et seq., provides procedures for identifying hazardous wastes and prescribes methods for handling and disposal of hazardous and nonhazardous wastes to prevent surface and groundwater contamination.

Comprehensive Environmental Response, Compensation and Liabilities Act, Title 42, United States Code, sections 9601 et seq., Title 40, Code of Federal Regulations, sections 300 to 350, establishes the responsibilities of government and industry for the release or threatened release of hazardous substances, provides reporting requirements for businesses that store, handle, treat manufacture, or dispose of hazardous materials. This act also establishes requirements for businesses handling large amounts of hazardous chemicals, including underground storage tanks. These requirements include emergency planning and community information about these facilities.

STATE

California Code of Regulations, title 23, section 2510 et seq., sets forth regulations pertaining to water quality implications of waste discharged to land.

California Water Code section 461 and Water Commission Resolution 77-1 encourage conservation of water resources and maximum reuse of wastewater, particularly in water-short areas. State Water Resources Control Board Resolution 75-58, discourages the use of fresh inland water for power plant cooling and encourages the use of wastewater for power plant cooling.

Porter-Cologne Water Quality Control Act of 1967, 23 California Code of Regulations, California Water Code section 13260 et seq., provides the Regional Water Quality

Control Boards with jurisdiction to control the discharge of pollutants into surface and groundwater bodies, and onto the land. In a 1991 amendment to the Act (Water Code § 13551), use of potable water for industrial uses was prohibited if suitable reclaimed water is available and other requirements are met (Water Code § 13550). A 1993 amendment (Water Code § 13552.6) also specifically prohibits the use of potable water for cooling towers if suitable reclaimed water is available and other specified requirements are met (Water Code § 13550).

LOCAL

San Francisco Municipal Building Code, Chapter 70. The San Francisco Building Code adopts the Uniform Building Code, including Chapter 70 which sets standards for grading and erosion control.

San Francisco Public Works Code, Article 20, Ordinance 253-86. Requires analysis of site history, soil sampling and testing and submittal of a report under specified conditions.

San Francisco Public Works Code, Article 4.1. Regulates industrial discharges to the sewer system.

TRANSMISSION LINE SAFETY AND NUISANCE

FEDERAL

Aviation Safety

Title 14, Code of Federal Regulations, Part 77, "Objects Affecting Navigable Airspace"

Federal Aviation Administration (FAA) Form 7460-1 "Notice of Proposed Construction or Alteration" (NPCA)

Advisory Circular (AC) No. 70/7460-1H. "Obstruction Marking and Lighting"

AC 70/7460-2H. "Proposed Construction or Alteration of Objects That May Affect the Navigable Airspace"

National Ocean Service, National Oceanic and Atmospheric Administration "Airport Facility Directory" 1995

STATE

Fire Hazards

Public Resources Code sections 4292-4296. "Mountainous, Forest-, Brush-, and Grass-Covered Lands"

Title 14, California Code of Regulations, sections 1250-1258: "Fire Prevention Standards for Electric Utilities"

Hazardous Shocks

California Public Utilities Commission (CPUC) General Order (GO)-95, "Rules for Overhead Electric Line Construction"

CPUC GO-128, "Rules for Construction of Underground Supply and Communications Systems"

Title 8, California Code of Regulations, section 2700 et seq.: "High Voltage Electrical Safety Orders."

LOCAL

Noise

San Francisco Police Code, Section 2909, Regulation of Noise (SF 1973).

INDUSTRY CODES AND STANDARDS

Nuisance Shocks

The American National Standards Institute (ANSI)/IEEE Standard 80-1986, *An American National Standard*, The Institute of Electrical and Electronics Engineers (IEEE) Guide for Safety in AC Substation Grounding

National Electric Safety Code (NESC), (ANSI) C2, Section 9, Rule 92 E; Rule 93 C 6, Section 23, Rule 232 B1c, C1c, D1c.

TRAFFIC AND TRANSPORTATION

FEDERAL

- Title 49, Code of Federal Regulations, Part 171, Hazardous Material Regulations, addresses the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- Title 49, CFR, Part 350 et seq., Federal Motor Carrier Safety Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

- California Vehicle Code sections 31303 et seq., Hazardous Materials, address the transportation of hazardous materials, the routes used, and restrictions thereon. Specifically, the transporter shall avoid, whenever practicable, congested thoroughfares, places where crowds are assembled, and residence districts as defined in section 515 of the Vehicle Code.
- California Vehicle Code sections 34000 et seq., Flammable and Combustible Liquids, address the transportation of flammable and combustible liquids over public roads and highways.
- California Vehicle Code sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34502-7 and 34510-11, Safety Regulations, address the safe operation of vehicles, including those which are used for the transportation of hazardous materials.
- California Vehicle Code sections 2500-2505 address the issuances of licenses by the Commissioner of the California Highway Patrol (CHP) for the transportation of hazardous materials including explosives.
- California Vehicle Code sections 12804-12804.5 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, it requires the possession of certificates permitting the operation of vehicles transporting hazardous materials.
- California Streets and Highways Code sections 117, 660-711 require an encroachment permit from the State Department of Transportation for facilities that require construction, maintenance, or repairs on or across state highways.
- California Vehicle Code section 35780; Streets and Highways Code sections 660-711; and Title 21, California Code of Regulations sections 1411.1-1411.6 state that overload

approvals from the State Department of Transportation are required for transportation of excessive loads over state highways.

LOCAL

City and County of San Francisco

- The City and County of San Francisco Traffic Code, Article 11, requires a permit from the San Francisco Department of Parking and Traffic for obstruction of traffic on public streets.
- The City and County of San Francisco Master Plan, Transportation Element establishes goals and policies and identifies specific implementation measures for City and County transportation and traffic systems.
- The City and County of San Francisco Public Works Code section 723.2, addresses encroachment permits for work within City streets.
- The City and County of San Francisco uses California Vehicle Code section 35780 as authority to permit the transportation of oversized loads on City streets.

SIGNIFICANCE CRITERIA

The following criteria are used by the Energy Commission to determine whether a project-related impact is potentially significant.

STATE

CEQA Guidelines (Calif. Code of Regs. tit. 14, §§ 14100 et seq.)

- Appendix G (I), states that a project will normally have a significant environmental effect if it will "cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system";
- Appendix I (II.13.a), environmental checklist asking if a proposal will result in "generation of substantial additional vehicular movement";
- Appendix I (II.13.b), environmental checklist asking if proposal will result in "effects on existing parking facilities, or demand for new parking";
- Appendix I (II.13.c), environmental checklist asking if proposal will result in "substantial impact upon existing transportation systems";

- Appendix I (II.13.d), environmental checklist asking if proposal will result in "alterations to present patterns of circulation or movement of people and/or goods";
- Appendix I (II.13.e), environmental checklist asking if proposal will result in "alterations to waterborne, rail or air traffic"; and
- Appendix I (II.13.f), environmental checklist asking if proposal will result in "increase in traffic hazards to motor vehicles, bicyclists or pedestrians".

VISUAL

CITY AND COUNTY

The project is located within the City and County of San Francisco. The City and County comprise a joint entity that has a number of documents that contain laws, ordinances, regulations, standards, policies, and plans that apply to the project.

San Francisco Master Plan

The San Francisco Master Plan is authorized by Section 3.524 of the Municipal Charter. It consists of the seven required policy elements and a number of area plans (CCSF 1986a). The area plan covering the project area is the South Bayshore Element. Several of the plan elements contain policies regarding visual resources.

Urban Design Element

The Urban Design Element specifies objectives and policies to emphasize neighborhood characteristics and image, provide a sense of nature and continuity with the past, moderate major new development to complement the city pattern, and improve the neighborhood environment.

City Pattern Section

Policy 1 of the City Pattern section of the Urban Design Element is to:

"Recognize and protect major views in the city, with particular attention to those of open space and water."

The discussion regarding this policy states in part that:

"Overlooks and other viewpoints for appreciation of the city and its environs should be protected and supplemented by limitation of buildings and other obstructions where necessary and by establishment of new viewpoints at key locations."

Part of the discussion regarding Policy 2 of the City Pattern section states that:

"Individual buildings and other structures should stand out prominently in the city pattern only in exceptional circumstances, where they signify the presence of important community facilities and occupy visual focal points that benefit from buildings and structures of such design."

Conservation Section

The Conservation section of the Urban Design element states in part that:

"...the water of the Bay is still a natural area that can be seen and used by the city's residents as an important part of their lives."

Objective 2 of the Urban Design Element, in the Conservation section states:

"Conservation of resources which provide a sense of nature, continuity with the past, and freedom from overcrowding."

Policy 3 related to Objective 2 is to:

"Avoid encroachments on San Francisco Bay that would be inconsistent with the Bay Plan or the needs of the city's residents."

The discussion regarding Policy 3 states in part that:

"Specific plans for sectors of the shoreline...should emphasize access to the Bay by the city's residents.... Access to the Bay...also includes visual contact through views of the water and of water-related activities. The system of access requires careful review of development and land use at the water's edge, *and similar review of projects further inland that will affect physical and visual contact with the water.*" (emphasis added)

Major New Development Section

Objective 3 of the Urban Design Element, in the Major New Development section, states:

"Moderation of major new development to complement the city pattern, the resources to be conserved, and the neighborhood environment."

The discussion of Objective 3 includes the statement that:

"The scale of each new building must be related to the height and bulk in the area, and to the wider effects upon the skyline, views and topographic form."

The discussion regarding major new development includes a list of fundamental principles, several of which are applicable:

"1.D. Low buildings along the waterfront contribute to the gradual tapering of height from hilltops to water that is characteristic of San Francisco and allows views of the Ocean and the Bay."

"11. A building situated in a visually dominant position, whose exterior is blank and uninteresting, does not relate to surrounding development and tends to repel the observer's attention."

"12. A long or wide building becomes excessively bulky in appearance when its height significantly exceeds that of buildings in the surrounding area."

"14. Bulky buildings that intrude upon or block important views of the Bay, Ocean or other significant citywide focal points are particularly disruptive."

Several policies relevant to visual resources are related to Objective 3, as follows.

Policy 2:

"Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance."

Policy 4:

"Promote building forms that will respect and improve the integrity of open spaces and other public places."

The discussion related to Policy 4 states in part that:

"New buildings should not block significant views of public open spaces especially large parks and the Bay. Buildings near these open spaces should permit visual access, and in some cases physical access, to them. Buildings to the south, east and west of parks and plazas should be limited in height or effectively oriented so as not to prevent the penetration of sunlight to such parks and plazas."

Policy 5:

"Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development."

Policy 6:

"Relate the bulk to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction."

The discussion related to Policy 6 states in part that:

"When buildings reach extreme bulk, by exceeding the prevailing height and prevailing horizontal dimensions of existing buildings in the area, especially at prominent and exposed locations, they can overwhelm other buildings, open spaces and the natural land forms, block views and disrupt the city's character. Such extremes in bulk should be avoided by establishment of maximum horizontal dimensions for new construction above the prevailing height of development in each area of the city."

Neighborhood Environment Section

Objective 4 of the Urban Design Element, in the Neighborhood Environment section, states:

"Improvement of the neighborhood environment to increase personal safety, comfort, pride and opportunity."

Policy 15 related to Objective 4 is to:

"Protect the livability and character of residential properties from the intrusion of incompatible new buildings."

Recreation and Open Space Element

Shoreline Section

Objective 3 of the Recreation and Open Space Element, in the Shoreline section, is:

"Provide continuous public open space along the shoreline unless public access clearly conflicts with maritime uses or other uses requiring a waterfront location."

Policy 1 related to Objective 3 is to:

"Assure that new development adjacent to the shoreline capitalizes on its unique waterfront location, considers shoreline land use provisions, improves visual and physical access to the water, and conforms with urban design policies."

The discussion of Policy 1 in regard to urban design states that new developments should, among other things:

- Avoid shadowing areas of public use;

- Maintain visual access to the water from more distant inland areas by preserving view corridors and lowering the profile of buildings;
- Screen development from view from the shoreline if it will detract from the natural setting of the shoreline; and
- Provide ample natural landscaping.

The discussion further states that:

"These policies governing land use, open space and urban design should be applied to new non-maritime developments within the Shoreline Zone designated in this plan.... The Shoreline Zone covers the city's entire shoreline but varies in degree to which it extends inland depending on the quantity of existing open space and public recreation facilities in the area, the patterns of land ownership, and on the amount of new development anticipated. For the most part, development at the water's edge is of primary concern. There may be developments further inland, however, which affect physical and visual contact with the water or affect the use of the shoreline for open space. Shoreline policies on open space and urban design should be applied to these developments as well."

South Bayshore Area Plan

The South Bayshore Area Plan contains several policies related to visual resources.

The Recreation section contains the following relevant policy and plan proposal:

"2. A marine-oriented recreation area is proposed at India Basin."

The Industry section contains the following relevant policies and plan proposals:

- "1. Generally, industry in the district should be attractive in appearance and labor intensive.
3. Adjustments in zoning boundaries should be considered and landscaped strips should be developed to separate industry from residence.
4. Except for marine uses, the shoreline should not be used for industry."

The Urban Design section contains the following relevant policies and plan proposals:

- "2. Parks are proposed along the length of the non-industrially used shoreline. In general there should be a new emphasis on the water as a visual asset and upon linking the district with the shore.
4. The hills should be emphasized as design features and the hilltops kept as open landscaped view points."
10. Landscaped buffer strips should be developed which delineate use districts and screen industry from homes."

Municipal Code

The Municipal Code (CCSF 1994) serves as the City and County zoning code. It was last revised in May 1994. Generally, whereas the Master Plan provides very general land development guidelines, the Planning Code provides specific guidance that regulates the development of land within the City and County of San Francisco.

Height and Bulk Districts

Article 2.5 of the Municipal Code addresses height and bulk restrictions for buildings and structures. The Zoning Maps of the code show that for both the Port Site (Map 8H) the height limitation is 40 feet. However, the Zoning Administrator for the San Francisco Planning Department has stated that the project is exempt from the height limit under Section 260(b)(2)(M) of the Planning Code (Passmore 1995). (This subsection exempts structures necessary for the operation of industrial plants where such structures and equipment do not contain separate floors.) The map gives the bulk designation of "X" to the site, which Section 270 of the code states means that bulk limits are not applicable, except for the situation covered by Section 260(a)(3), which does not apply.

WASTE

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 provisions of RCRA may be administered in each state by the U.S. Environmental Protection Agency (EPA). However, the law also allows EPA to delegate the administration of the RCRA program to the various states. When a state receives final EPA authorization, its regulations have the force and effect of federal law. EPA grants final authorization when a state program is shown to be equivalent to the federal requirements. California received final authorization on August 1, 1992.

RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6921 requires EPA to promulgate regulations identifying hazardous wastes subject to the management standards either by listing them or describing characteristics which qualify the wastes as hazardous.

Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- labeling practices and use of appropriate containers,
- use of a manifest system for transportation, and
- submission of periodic reports to the U.S. EPA or authorized state.

RCRA also establishes requirements applicable to hazardous waste transporters, including record keeping, compliance with the manifest system, and transportation only to permitted facilities.

Amendments to RCRA passed in 1984 broadened regulatory control and banned land disposal of untreated hazardous wastes.

- Title 40, Code of Federal Regulations, part 260. This part contains regulations promulgated by the U.S. Environmental Protection Agency (EPA) to implement the requirements of the RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity; specific types of wastes are listed.
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) (42 U.S.C. § 9601 et seq.). Persons in charge of on-shore facilities are

required to report to the federal government any spill or other unpermitted release of a hazardous substance to the environment in a reportable quantity. Title 40, Code of Federal Regulations, section 302.4, sets forth the list of all hazardous substances under Superfund and the reportable quantities for each.

STATE

- Public Resources Code section 40000 et seq. (California Integrated Waste Management Act of 1989). These sections, comprising Division 30 of the Public Resources Code, regulate solid waste management in California and created the California Integrated Waste Management Board. The Board is required to adopt and revise minimum standards for solid waste handling and disposal, including design, operation, maintenance and ultimate reuse of solid waste processing or disposal facilities.

Local government has the primary responsibility for solid waste management and planning. Each county and city must prepare and submit to the Integrated Waste Management Board a county-wide integrated waste management plan which includes source reduction and recycling elements, a county-wide siting element, and a summary of significant waste management problems facing the county. Within each county, an enforcement agency may be designated to carry out permitting, inspection, and enforcement of regulations at solid waste landfills, incinerators, and transfer and processing stations.

- Title 14, California Code of Regulations, section 17020 et seq. These regulations set forth planning guidelines for county solid waste management plans, minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.
- California Health and Safety Code section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended). This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes. Additionally, transporters of hazardous wastes must hold valid registrations with Cal EPA.
- California Health and Safety Code section 25500 et seq. (Hazardous Materials Release Response Plans and Inventory). This portion of the Code requires businesses to prepare plans relating to the handling and release or threatened release of hazardous materials. Quantities of hazardous materials or mixtures (including hazardous waste) handled by

businesses are established which, if exceeded, require the preparation and implementation of a business plan. Business plans must include emergency response plans and procedures, and information on hazardous wastes including chemical composition, and maximum amounts handled. If certain quantities of acute hazardous materials are handled, the preparation of a Risk Management and Prevention Program may be required.

- Title 22, California Code of Regulations, section 66001 et seq. These sections set forth the state's minimum standards for the management of hazardous and extremely hazardous wastes, thereby implementing the Hazardous Waste Control Act of 1972, as amended.

Title 22, California Code of Regulations, section 66262.10 et seq. establishes requirements for generators of hazardous waste. Under these sections, waste generators must determine if their 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.

- California Water Code section 13000 et seq. (Porter-Cologne Water Quality Control Act). This law regulates the discharge of wastes which could affect water quality and is designed to protect surface and groundwaters of the state against contamination and loss of beneficial use. The Act requires the State Water Resources Control Board to classify wastes according to the risk of impairing water quality and the types of disposal sites according to the level of protection provided for water quality.

Regional Water Quality Control Boards must review and classify waste disposal sites consistent with the classifications adopted by the State Board. The regional boards also issue waste discharge requirements addressing the nature and limiting the release of any wastes which could degrade waters of the state. Discharge of a hazardous substance which is not in compliance with waste discharge requirements requires notification of the State Office of Emergency Services in accordance with the spill reporting provision of the State Toxic Disaster Contingency Plan.

For purposes of spill reporting, the State Water Resources Control Board must establish reportable quantities of hazardous wastes and hazardous materials based on their potential to degrade surface or groundwater and the attendant environmental and health risks.

- Title 23, California Code of Regulations, section 2510 et seq. These sections (Chapter 15, Discharges of Waste to Land) establish waste and site classifications and waste management requirements for waste treatment, storage, or disposal accomplished by landfills, surface impoundments, waste piles, and land treatment facilities.

Article 2 contains a waste classification system which provides the basis for determining which wastes may be discharged at each class of waste management unit.

Article 3 contains classification and siting criteria for waste management units and establishes three classes of disposal units (e.g. landfills): Class I for hazardous waste, Class II for designated waste, and Class III for nonhazardous solid waste.

Article 9 requires anyone proposing to discharge wastes to land where water quality can be affected to submit a report of waste discharge to the regional board which then adopts waste discharge requirements.

LOCAL

- San Francisco City and County Ordinance 253-86. The Maher ordinance requires that hazardous waste analyses be performed on soils to obtain building permits under specified conditions. Projects disturbing more than 50 cubic yards of soil and which are located bayward of the historic high tide, or in any other areas designated by the Director of Public Health, fall under the requirements of the ordinance.
- San Francisco Health Code Article 22 - Hazardous Waste Generator Inspections. This ordinance authorizes the Director of Public Health to enforce the provisions of the California Hazardous Waste Control Act and conduct inspections of hazardous waste generator sites in the City and County of San Francisco.

