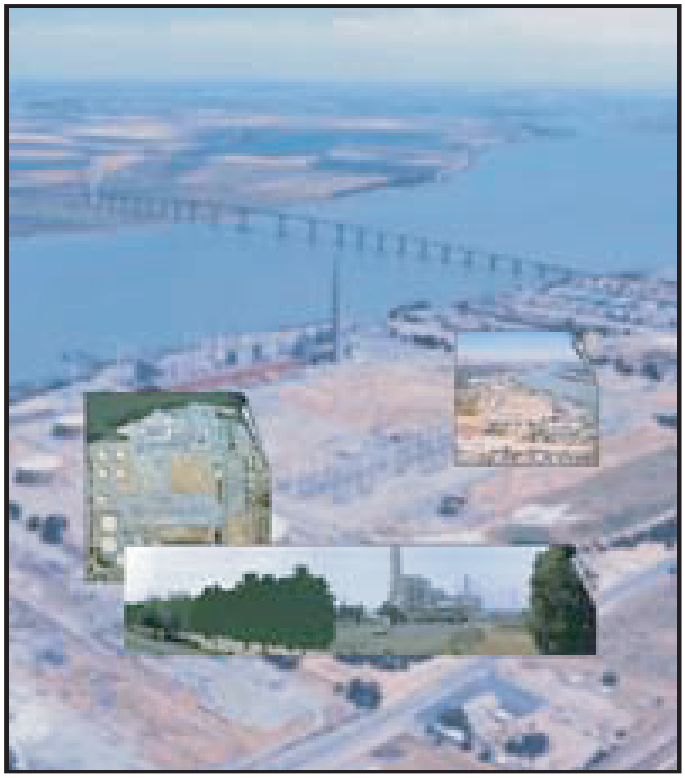
CALIFORNIA
ENERGY
COMMISSION

CONTRA COSTA UNIT 8 POWER PROJECT

Application For Certfication (00-AFC-1)
Contra Costa, California



COMMISSION DECISION

MAY 2001
(00-AFC-1)
P 800-01-18

Gray Davis, Governor

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EXECUTIVE SUMMARY:

APPROVED

WITH CONDITIONS

The Energy Commission approves the Mirant Delta LLC's proposed 530 megawatt (MW) Contra Costa Unit 8 power plant project near Antioch, California, together with the following highlighted measures to mitigate potential environmental and community impacts:

AIR QUALITY:

- ✓ The power plant will use state-of-the-art Best Available Control Technology to minimize emissions.
- ✓ Complete offsets will be used to compensate for any pollutant for which the Bay Area is in violation.

WATER RESOURCES:

- ✓ For cooling water, Mirant will use the existing Sacramento River water intake and outfall system for Units 6 and 7. The use of a cooling tower will minimize the heating of the water discharged back into the River.

BIOLOGY:

- ✓ An aquatic filter barrier is to be installed on the Unit 6 and 7 intake structure to reduce the fish and aquatic organisms impinged during cooling water pumping from the River.

LAND USE:

- ✓ Use of the existing Contra Costa Power Plant site, plus its existing transmission lines, will keep the power plant in an already industrial area.

VISUAL EFFECTS:

- ✓ Mirant relocated the project to significantly reduce the visual impact to the neighboring Sportmen Yacht Club.
- ✓ Structures and fences will be painted in muted colors compatible with the setting.
- ✓ Shields on plant lighting will minimize nighttime glare.
- ✓ Tree planting will screen views of the project, particularly from the Sportmen Yacht Club.

PROJECT DESCRIPTION

On January 31, 2000, Southern Energy Delta, LLC – now Mirant Delta, LLC (applicant) – filed an Application for Certification (AFC) with the California Energy Commission for the Contra Costa Power Plant (CCPP) Unit 8 Power Project. As proposed, the CCPP Unit 8 would be a nominal 530-megawatt (MW), natural gas-fired, combined cycle, combustion turbine power plant located within the existing CCPP site complex in Contra Costa County, just north of the City of Antioch. The new combined cycle power unit would increase the overall generating capacity of the CCPP to a total of approximately 1,210 net MW.

The CCPP is located in unincorporated Contra Costa County (within the City of Antioch's Sphere of Influence), on Wilbur Avenue, one mile northeast of Antioch, on the southern shore of the San Joaquin River. State Route (SR) 4, SR 160, and the Antioch Bridge are just east of the site. The applicant proposes to locate the new unit along the northeast side of the CCPP site, approximately midway between Wilbur Avenue (south) and the San Joaquin River (north). The plant is surrounded by industrial uses to the south and west, the San Joaquin River to the north, a commercial marina, industrial uses, and open space to the east. See **PROJECT DESCRIPTION Figure 1** in the Final Staff Assessment (FSA) for the regional setting of the project.

Pacific Gas and Electric Company (PG&E) originally constructed the CCPP complex in 1951. Units 4 and 5 were added in 1953, and Units 6 and 7 were added in 1964. In 1994, the original Units 1, 2 and 3 were retired, leaving only Units 4, 5, 6 and 7 in operation. Mirant Corporation (formerly Southern Energy California) purchased the CCPP from PG&E in April of 1999. The existing units are conventional natural gas-fired boilers that use once-through cooling. Units 6 and 7 are the only units that still produce power. Units 4 and 5 are used as synchronous condensers only. Existing power capacity from Units 6 and 7 is 680 MW.

The applicant proposes to site Unit 8 on approximately 20 acres on the eastern side of the existing approximately 200-acre site. Since the new unit would be constructed wholly within the site of the existing CCPP, it would rely on many of the existing plant's systems such as plant process make-up water, wastewater treatment system, cooling water supply, fire water supply, ammonia supply, and other ancillary systems. The generator output from the new unit would be stepped-up to transmission voltage and interconnected to the existing PG&E switchyard also located within the CCPP site.

The proposed Unit 8 combined cycle power unit would consist of two natural gas-fired combustion turbine generators, two heat recovery steam generators (HRSGs), and a steam turbine generator. In the combined cycle process, electricity is created both from the combustion turbines and the steam turbine. Each combustion turbine generator converts the thermal energy of natural gas to mechanical energy, which drives an electrical generator. At the same time, the thermal energy in the form of hot exhaust gas is directed to the HRSGs to produce steam, which in turn drives the steam turbine electricity generator. The combined cycle process is considered to be "state of the art" in that it creates electricity more efficiently – and creates less pollution – than conventional power systems.

Additional project facilities would include two 195-foot tall exhaust stacks on the heat recovery generators, a 10-cell water cooling tower, storage tanks, a control building, and electrical power transformers and transmission facilities to interconnect with the existing PG&E switchyard on the CCPP site complex.

Included in the plan for Unit 8 is a new transmission interconnection to the existing PG&E switchyard. As described by the applicant, no additional electric transmission lines outside of the CCPP complex are needed to transmit Unit 8's electricity to the regional transmission grid. A gas pipeline that runs through the CCPP would tie in to the existing gas pipeline and deliver natural gas to the new facility. Primary water needs for Unit 8 would include cooling tower makeup and process water makeup, both of which would be supplied by re-use of water already withdrawn from the San Joaquin River for use in Units 6 and 7. Existing water treatment facilities would treat the water needed to meet process water requirements. In the event that river quality were to be unacceptable for the treatment system to handle, Unit 8 would draw process water from a 500,000-gallon demineralized water storage tank, added to the project to eliminate the need for water backup from the City of Antioch. According to the project description provided by Mirant, Unit 8 would not require the withdrawal of additional water from the San Joaquin River. Potable water for personnel is expected to be provided by the City of Antioch.

Wastewater streams that would be generated specifically during the operation and maintenance of Unit 8 include wastewater, or blowdown, from the cooling tower and evaporative coolers. Other wastewater streams to which Unit 8 would contribute include equipment wash water, sanitary waste, drains, and stormwater.

Project Relocation - Enhanced Site Plan

Mirant has revised the location of the Unit 8 facility within the property boundary of the Contra Costa Power Plant. These revisions form an Enhanced Site Plan alternative that has been configured to reduce offsite impacts that have been identified during the course of the CEC proceeding. The Enhanced Site Plan:

- Adjusts the general location of Unit 8 southward so that it is no longer adjacent to the Sportsmen Yacht Club (SYC) facilities,
- Adjusts the relative configuration of the Unit 8 primary plant to form a more compact overall development footprint,
- Revises the route of the interconnecting transmission line so that it no longer follows any portion of the eastern property boundary.

The Enhanced Site Plan with its revised facility location is illustrated in **PROJECT DESCRIPTION Figure 2**. This figure shows the relative change in position of the Unit 8 equipment. The overall construction site for the Enhanced Site Plan has been maintained within the construction site originally designated for Unit 8. In the Enhanced Site Plan, the Unit 8 equipment has been moved approximately 525 feet to the south and 45 feet west. The area where the combustion turbines were formerly located will be used temporarily for construction trailers, and following construction, returned to recreation use for employees.

To form the Enhanced Site Plan, the two combustion-turbine generator/heat recovery steam generator modules and cooling tower have been moved approximately 525 feet south and 45 feet west from their original location. In the repositioned configuration no equipment has been moved any closer to the property boundary. The setback of this equipment has been maintained at 300 feet or greater from the east property boundary to the base of the inlet air coolers.

The steam turbine-generator module has been repositioned so that it is now directly south of the combustion turbines. In this location it has been moved approximately 195 feet farther from the east property boundary than its original location, and closer to the heat recovery steam generators, allowing for more efficient piping to the steam turbine.

The Unit 8 Switchyard has been reconfigured so that each of the generator step-up transformers will be attached to a connector bus that has a north-south orientation and is parallel to the eastern property boundary. This is generally similar to the initial Unit 8 Site Plan. However, the transmission interconnection to the PG&E Substation can now begin at the northern end of the connector bus and be routed directly west and away from the eastern property boundary. The interconnecting transmission line will no longer be located along the eastern property boundary.

An Administration Building has been added to the Enhanced Site Plan to house communication and control equipment for Unit 8. This equipment formerly would have been housed in the CCPP main control facility. This building will be a low-rise, one-story industrial type structure and is located on the west side of Unit 8 steam turbine generator, having little visibility from neighboring viewing locations. The Administration Building will be approximately 75 feet by 75 feet.

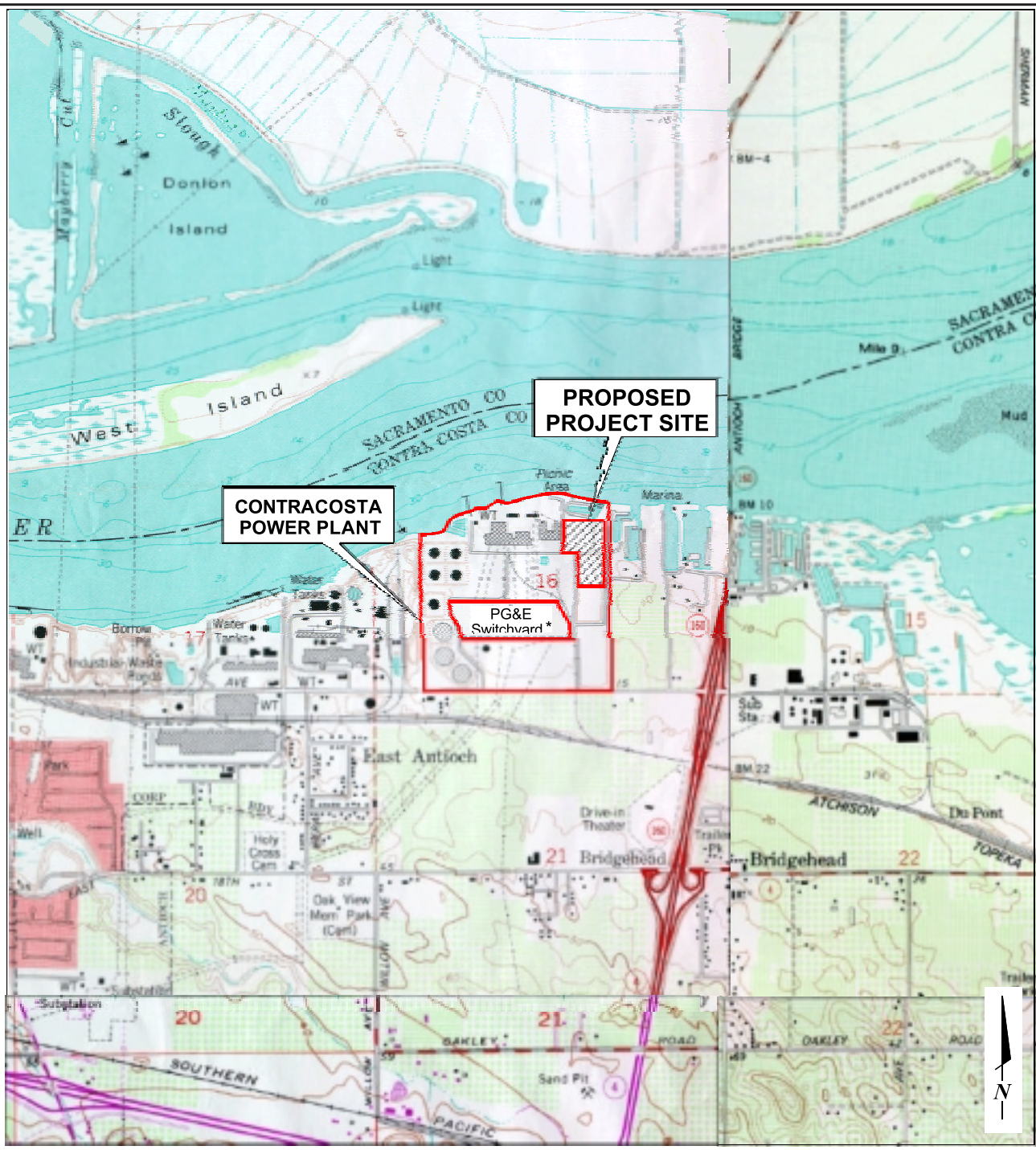
Since none of the Unit 8 facilities, in their revised locations, will be closer to the Contra Costa Power Plant property boundary, none of the site-specific effects of construction and operation of Unit 8 are expected to increase. The Enhanced Site Plan is expected to:

- Reduce the visibility of Unit 8 facilities from the Sportsmen Yacht Club and in particular for the Sausalito Ferry club house and other viewing positions,
- Reduce apparent noise from the operation of Unit 8 at the SYC and other adjacent properties,
- Maintain the employee use recreational area adjacent to the Unit 6 and 7 cooling water discharge channel.

Mirant proposes to begin construction in mid-2001, and start operation of CCPP Unit 8 by mid-2003. The proposed project is estimated to cost between $240 and $290 million. During the 22-month construction period, approximately 285 construction workers would be employed. Operation of the CCPP Unit 8 would require 10 full-time employees in addition to the existing CCPP workforce of 53 employees.

PROJECT DESCRIPTION - Figure 1

Contra Costa Power Plant Unit 8 Project - Regional Setting



Source: USGSTopographicMap,7.5MinuteSeries
Antioch North, California,1980
Antioch South,California,1978
Jersey Island, California, 1978
Brentwood, California,1978

* The PG&E Switchyard is not part of the site.

0 2000 4000

Scale in Feet
1:24,000

CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2001
SOURCE: 00-AFC-1 Figure 1-1

SAN JOAQUIN RIVER

UNITS 1- 5 and Water Treatment Intake Structure

UNITS 6 and 7 Intake Structure

SPORTSMEN YACHT CLUB

UNITS 6 and 7 Discharge Canal

Water Treatment Plant

UNITS 1-5 and Water Treatment Discharge Canal

Units 1-3

Units 4 and 5

Units 6 and 7

Construction Trailers

Turbine Building

Tank

Tank

Tank

Tank

Construction Laydown Area

Construction Parking

Proposed Site Boundary

UNIT 8

Tank

Transformers

PG&E SWITCHYARD*

Construction Laydown Area

Tank

Tank

Tank

Wilbur Road

CCPP Site Boundary

* The PG&E Switchyard is not part of the site.

N

0 300 600

Approximate Scale in Feet

UNIT 8
ENHANCED SITE PLAN (4/09/01)

Contra Costa Power Plant Unit 8 Project
Mirant Delta LLC
Contra Costa County, California

40480-005-043

URS

FIGURE 1

4/10/01 vsa ...\40480-005\Site Rev Apr01\u8sp-apr01-REV7.cdr

AIR QUALITY

AIR QUALITY - GENERAL

The project area is characterized by prevailing strong winds from the west, particularly during the summer, fall, and winter. Sometimes during spring, a weak westerly flow (flow from the east) develops, causing elevated pollutant levels in the Bay Area. During these periods the Bay Area, in general, is affected by low wind speeds and shallow mixing depths, thereby allowing the build-up of pollution levels.

The construction of the proposed project will last approximately 22 months, and generally consists of two major activities: site preparation and the construction and installation of major equipment and structures. The applicant provided estimated peak hourly, monthly, and annual construction equipment exhaust emissions (Southern, 2000a). These estimated construction emissions are identified in **AIR QUALITY Table 4** in the FSA (SA p. 54). Emissions from construction equipment exhausts, such as vehicles and internal combustion engines, are also expected during the project construction phase. A small amount of hydrocarbon emissions may also occur as a result of the temporary storage of petroleum fuel at the site (SA p. 53). The daily emissions provided in **AIR QUALITY Table 6** (SA p. 56), show different operating scenarios, and the resultant emissions, including CTG startup (cold and hot), shutdown, and steady state operation.

Initial Commissioning

The initial commissioning refers to a period of approximately 60 days prior to beginning commercial operation when the combustion turbines will undergo initial test firing. During this commissioning phase, the project may operate at a low-load for a long period of time for fine-tuning. All criteria air contaminant emissions during the commissioning period will be counted toward the annual emission limits; thus there is an incentive for the applicant to limit the commissioning period to the shortest time possible.

Air Quality Modeling

The applicant has used EPA-approved air quality models (ISCST3 and Fumigation) to estimate the impacts of the project's NO_x, PM10, CO, and SO_x emissions resulting from project construction and operation. A description of the modeling analyses and results are provided in Section 8.1.2.3 and Tables 8.1-15 to 8.1-17 of the AFC (Southern, 2000a). Staff added the applicant's modeled impacts to the available highest ambient background concentrations measured during 1993 through 1998 at the Pittsburg monitoring station. The results were compared with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new violation of the ambient air quality standards or contribute to an existing violation (SA p. 57). Inputs for the modeling include stack information (exhaust flow rate, temperature, and stack dimensions), specific turbine emission data and meteorological data, such as wind speed, atmospheric conditions, and site elevation. Meteorological data used as inputs to the model included hourly wind speeds and directions measured at the project site.

CONSTRUCTION IMPACTS

The results of the project construction impacts analyses are presented in **AIR QUALITY Table 8** in the FSA (SA p. 58). The modeling analyses included both the fugitive dust and vehicle exhaust emissions, which include PM10, NO_x and CO. As indicated in **Air Quality Table 8**, the project construction activities would further exacerbate existing violations of the state 24-hour PM10 standard. In reviewing the modeling output files, the project's construction impacts are expected to occur over an area at the project's property fence lines with not public access. (SA pp. 57-58)

The predicted impacts are high because the model itself calculates impacts that are very conservative, usually exceeding actual impact levels by a considerable margin. The emissions inputs to the model were from the highest monthly emissions assumed during the 22-month construction period. During the other months of construction work, considerably less emission generating equipment will be used and thus the impacts will be even lower. Therefore, it is likely that the impacts from the construction of the project can be further reduced with the implementation of Conditions of Certification.

OPERATION IMPACTS

AIR QUALITY Table 9 in the FSA (SA p. 59) presents the results of the modeling analysis using worst-case hourly emissions, which include turbine start-up and cooling tower emissions as presented in **AIR QUALITY Table 5**. **AIR QUALITY Table 9** shows that, with the exception of PM10, the project does not cause any new violations of any applicable air quality standard. As for PM10, staff believes that the project itself will contribute to existing violations of the state 24-hour PM10 air quality standards. Therefore, the project's PM10 emission impacts are significant. It should also be noted that the typical project emission impacts representing normal project operation, not including start ups, will be less than the values shown in **AIR QUALITY Table 9** because the project emissions during normal operation will be lower than the emissions used in the modeling analyses (SA pp. 58-59).

CUMULATIVE IMPACTS

Directly Emitted Pollutants

As seen from **AIR QUALITY Table 10** in the FSA (SA p. 60), the cumulative impacts of CCPP Unit 8 and all other potential sources did not cause any new violation of the 1-hour and annual NO_2 and the annual PM10 standards. The proposed CCPP Unit 8 and other potential sources cumulatively add 4 $\mu g/m^3$ of PM10 impact to the existing violation of the state 24-hour PM10 standard. Therefore, the proposed project's cumulative PM10 impact is significant. It should also be noted that the proposed CCPP Unit 8 and other sources' maximum cumulative impact for the 1-hour NO_2 is directly at the property fence line located south east of the PG&E switchyard. For the annual NO_2 and the 24-hour and annual PM10 standards, the point of maximum impact is at the south of the town of Pittsburg, which is approximately 6 miles west of the proposed CCPP Unit 8. The cumulative impacts for the 24-hour PM10 and the annual NO_2 and PM10 were heavily influenced by the Bio Energy LLC facility (SA pp. 59-60).

Ozone

The proposed project's gaseous emissions, primarily NO_x and VOC, can contribute to the formation of ozone. There are air dispersion models that can be used to quantify ozone impacts, but they are only appropriate for use in regional air quality planning efforts where numerous sources are input into the modeling to determine the regional ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NO_x and VOC emissions to ozone formation, staff believes that the emissions of NO_x and VOC from the CCPP Unit 8 do have the potential to contribute to higher ozone levels if not mitigated. CCPP Unit 8 NO_x and VOC contribution to the regional ozone problem is not considered to be significant because the applicant has proposed to purchase emission reduction credits of NO_x and VOC to fully trade off for the emission increases by the proposed facility (SA p. 61).

Secondary PM10

The project's NO_x, VOC, NH_3, and SO_x emissions can contribute to the formation of secondary PM10, namely organic condensable, nitrate, and sulfate base particulate matter. The project's VOC emissions will be in the form of unburned natural gas, which is mostly methane and ethane, which contain only one or two carbon atoms. Thus the turbine exhaust is not expected to emit any significant amount of VOC that can participate in the formation of secondary PM10.

The project's ammonia emissions have a potential to contribute to the ammonium nitrate emissions, which may worsen the violation of the PM10 standard. Assuming a 30 percent NO_x to nitrate conversion rate and a linear extrapolation of the project's PM10 modeling results, the NO_x to nitrate impact from the project can be at a maximum 2 $\mu g/m^3$. Because the area is non-attainment for the state 24-hr PM10 standard, the ammonium nitrate contribution, although small, is significant without providing emission reductions as offsets.

The project will contribute a very small amount to sulfate levels in the area. Currently, there are no agency (EPA or CARB) recommended model or procedure for estimating sulfate formation. Nevertheless, studies during the past two decades have provided data on the oxidation rates of SO_2. Because the project uses natural gas as fuel, very little SO_2 emissions will be emitted; thus the SO_2 to sulfates conversion modeling is not performed or needed. Staff still recommends that offsets, in the form of emission reductions, should be provided to lessen the project's PM10 contribution to the ambient air to the level of insignificance (SA p. 61).

<u>VISIBILITY IMPACTS</u>

Visible plumes from the HRSG exhaust will occur from the CCPP Unit 8 project during periods of cold weather or cool wet weather. The actual frequency of occurrence is weather dependent and will vary from year to year. HRSG plume formation can occur during the daytime or nighttime; the meteorological data reviewed indicate that conditions for plume formation are most prevalent during nighttime and early morning hours. However, considering the high relative humidities that are generally necessary for plume formation, the ambient visibility during many of these events may be impaired (i.e., due to foggy, rainy or cloudy

conditions) limiting the potential visual impact of these plumes (Supplemental Air Quality SA p. 11).

The applicant has provided, as part of their PSD application to the District, a visibility impact analysis, which shows that the project is not expected to exceed any significant visibility impairment increment inside any nearby PSD Class I areas (Southern, 2000a). Class I areas are areas of special national or regional value from a natural, scenic, recreational, or historic perspective (SA p. 62).

FINDING

With the implementation of Conditions of Certification AQC-1 and AQC-2, and AQ-1 through AQ-47, the proposed project's construction- and operation-related air quality impacts would be reduced to less-than-significant levels.

CONDITIONS OF CERTIFICATION

Construction

AQC-1 During construction of this facility, the following fugitive emission control measures shall be implemented at the plant site:

a. Suspend all land clearing, grading, earth moving, or excavation activities when winds (including instantaneous gusts) exceed 20 miles per hour.
b. Apply water to active construction sites and unpaved roads at least twice daily to control fugitive dust.
c. Apply sufficient water or dust suppressants to all material excavated, stockpiled, or graded to prevent fugitive dust from leaving the property boundaries and causing a public nuisance or a violation of an ambient air standard.
d. Apply a non-toxic solid stabilizer to all inactive construction areas (previously graded areas which remain inactive for 96 hours).
e. No on-site vehicle shall exceed a speed of 10 miles per hour on unpaved roads or areas.
f. All trucks hauling dirt, sand, soil, or other loose material will be watered or covered and will maintain at least two feet of freeboard to prevent a public nuisance.
g. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
h. Sweep streets with a water sweeper at the end of each day if visible soil materials are carried onto adjacent public or private paved roads.
i. Re-establish ground cover on the construction site through seeding and watering as soon as possible, but no later than final occupancy.
j. Implement all dust control measures in a timely and effective manner during all phases of project development and construction.
k. Place sandbags adjacent to roadways to prevent run off to public roadways.

l. Install wind breaks at the windward sides of construction areas prior to the soil being disturbed. The wind breaks shall remain in place until the soil is stabilized or permanently covered.
m. Limit construction vehicles and equipment idle time to no more than 5 minutes.

Verification: The project owner shall maintain a daily log of water truck activities, including record of the frequency of public road cleaning. 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 and the City of Antioch inspection staff and the CPM for inspection and monitoring.

AQC-2 The project owner shall employ the following measures to mitigate, to the extent practical, construction-related emission impacts from off-road, diesel-fired construction equipment. These measures include the use of oxidizing soot filters, oxidizing catalysts, diesel fuel certified to CARB low sulfur fuel standards (sulfur content less than 15 ppm) and diesel engines that are either equipped with high pressure fuel injection, employ fuel injection timing retardation or are certified to EPA and CARB 1996 or better off-road equipment emission standards. Additionally, the project owner shall restrict idle time, to the extent practical, to no more than 5 minutes.

The use of each mitigation measure is to be determined by a qualified independent California Licensed Mechanical Engineer (ME). The ME is to be approved by the CPM prior to the submission of any reports. The ME will determine the mitigation measures to be used within the following framework.

Construction Mitigation Framework

1. No measure or combination of measures shall be allowed to significantly delay the project construction or construction of related linear facilities.

2. No measure or combination of measures shall be allowed to cause significant damage to the construction equipment or cause a significant risk to on site workers or the public.

3. Engines certified to EPA and CARB 1996 or better off-road equipment emission standards and CARB certified low sulfur diesel fuel may be used in lieu of oxidizing soot filter and oxidizing catalyst.

The ME will, in consultation with the California Air Resources Board (CARB), submit the following reports to the CPM for approval:

- Construction Mitigation Plan
- Reports of Change and Mitigation Implementation
- Emergency Termination of Mitigation Reports (as necessary)

Construction Mitigation Plan

The Construction Mitigation Plan shall be submitted to the CPM for approval prior to rough grading on the project site and will include:

1. A list of all diesel fuel burning, off-road stationary or portable construction related equipment to be used either on the project construction site or the construction sites of the related linear facilities.
2. All equipment listed under (1) shall be identified as either using engines certified to EPA and CARB 1996 or better off-road equipment emission standards, using diesel engines that are equipped with high pressure fuel injection, or using diesel engines that employ fuel injection timing retardation.
3. The determination of the suitability of all equipment listed under (1) to work appropriately with an oxidizing catalyst shall be identified except as provided for in item 2 of the Construction Mitigation Framework above. If a piece of equipment is determined to be unsuitable for an oxidizing catalyst, the ME will provide an explanation as to the cause of this determination.
4. The determination of the suitability of all equipment listed under (1) to work appropriately with an oxidizing soot filter shall be identified except as provided for in item 2 of the Construction Mitigation Framework above. If a piece of equipment is determined to be unsuitable for an oxidizing-soot filter, the ME will provide an explanation as to the cause of this determination.
5. Maximum idle times shall be identified for all equipment listed under (1).
6. The sulfur content of all diesel fuel to be burned in any equipment listed under (1) shall be identified.

Report of Change and Mitigation Implementation

The ME shall submit a Report of Change and Mitigation Implementation for approval to the CPM following the initiation of construction activities, which contains at a minimum the cause of any deviation from the Construction Mitigation Plan, and verification of the Construction Mitigation Plan measures that were implemented. Verification includes, but shall not be limited to, the following:

1. EPA or CARB engine certifications for item 2 of the Construction Mitigation Plan.

2. A copy of the contract agreement requiring subcontractors to comply with the elements under item 2 of the Construction Mitigation Plan.

3. Confirmation of the installation of either oxidizing catalysts or oxidizing soot filters as identified in items 3 and 4 of the Construction Mitigation Plan or the cause preventing the identified installations.

4. A copy of the contract agreement requiring subcontractors to comply with the elements under item 5 of the Construction Mitigation Plan.

5. A copy of receipts of purchase of diesel fuel indicating the sulfur content as identified in item 6 of the Construction Mitigation Plan.

Emergency Termination of Mitigation Report

If a specific mitigation measure is determined to be detrimental to a piece of construction equipment or is determined to be causing significant delays in the construction schedule of the project or the associated linear facilities, the mitigation measure may be eliminated or terminated immediately. However notification must be sent to the CPM for approval containing an explanation for the cause of the termination. All such causes are restricted to one of the following justifications and must be identified in any Emergency Termination of Mitigation Report.

1. The measure is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or power output due to an excessive increase in back pressure.

2. The measure is causing or reasonably expected to cause significant damage to the construction equipment engine.

3. The measure is causing or reasonably expected to cause a significant risk to nearby workers or the public.

4. Any other seriously detrimental cause which has approval by the CPM prior to the change being implemented.

Verification: The project owner shall submit the qualifications of the ME and the Construction Mitigation Plan to the CPM for approval at least 30 calendar days prior to rough grading on the project site. The project owner shall submit the Report of Change and Mitigation Implementation to the CPM for approval no later than 10 working days following the use of the specific construction equipment on either the project site or the associated linear facilities. The project owner shall submit any Emergency Termination of Mitigation Reports to the CPM for approval, as required, no later than 10 working days following the termination of any identified mitigation measure. The CPM will monitor the approval of all reports submitted by the project owner in consultation with CARB, limiting the review time for any one report to no more than 20 working days.

Conditions for the Commissioning Period

AQ-1 The owner/operator of the CCPP Unit 8 (CCPP Unit 8) shall minimize emissions of carbon monoxide and nitrogen oxides from S-41 and S-43 Gas Turbines and S-42 and S-44 Heat Recovery Steam Generators (HRSGs) to the maximum extent possible during the commissioning period. Conditions AQ-1 through 12 shall only apply during the commissioning period as defined above. Unless otherwise

indicated, Conditions AQ-13 through 47 shall apply after the commissioning period has ended.

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

AQ-2 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the S-41 & S-43 Gas Turbine combustors and S-42 & S-44 Heat Recovery Steam Generator duct burners shall be tuned to minimize the emissions of carbon monoxide and nitrogen oxides.

Verification: See verification in Condition AQ-1.

AQ-3 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the A-11 and A-13 SCR Systems and A-12 and A-14 CO Oxidation Catalyst Systems shall be installed, adjusted, and operated to minimize the emissions of carbon monoxide and nitrogen oxides from S-41 & S-43 Gas Turbines and S-42 & S-44 Heat Recovery Steam Generators.

Verification: See verification in Condition AQ-1.

AQ-4 Coincident with the as designed operation of A-11 & A-13 SCR Systems, pursuant to Conditions AQ-3, 10, 11, and 12, the Gas Turbines (S-41 & S-43) and the HRSGs (S-42 & S-44) shall comply with the NOx and CO emission limitations specified in conditions 20(a) through 20(d).

Verification: See verification in Condition AQ-1.

AQ-5 At least four weeks prior to first firing of S-41 or S-43 Gas Turbines, the owner/operator of the CCPP Unit 8 shall submit a plan to the District Permit Services Division and the CEC CPM describing the procedures to be followed during the commissioning of the turbines, HRSGs, and gas-fired preheater. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the Dry-Low-NOx combustors, the installation and operation of the SCR systems and oxidation catalysts, the installation, calibration, and testing of the CO and NOx continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-41 & S-43) and HRSGs (S-42 & S-44) without abatement by their respective SCR and CO oxidation catalyst systems.

Verification: See verification in Condition AQ-1.

AQ-6 During the commissioning period, the owner/operator of the CCPP Unit 8 shall demonstrate compliance with Conditions AQ-8 through 11 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

1. firing hours for each gas turbine and each HRSG

2. fuel flow rates to each train

3. stack gas nitrogen oxide emission concentrations at P-11 and P-12

4. stack gas carbon monoxide emission concentrations at P-11 and P-12

5. stack gas carbon dioxide concentrations at P-11 and P-12.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-41 & S-43) and HRSGs (S-42 & S-44). The owner/operator shall use District-approved methods to calculate heat input rates, NO_x mass emission rates (as NO_2), carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel upon request.

Verification: See verification in Condition AQ-1.

AQ-7 The District-approved continuous monitors specified in condition AQ-6 shall be installed, calibrated, and operational prior to first firing of the Gas Turbines (S-41 & S-43) and Heat Recovery Steam Generators (S-42 & S-44). After first firing of the turbines, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the resulting range of CO and NOx emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

Verification: See verification in Condition AQ-1.

AQ-8 The total number of firing hours of S-41 Gas Turbine and S-42 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-11 SCR System and/or A-12 Oxidation Catalyst System shall not exceed 500 hours during the commissioning period. Such operation of S-41 Gas Turbine and S-42 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 500 firing hours without abatement shall expire.

Verification: See verification in Condition AQ-1.

AQ-9 The total number of firing hours of S-43 Gas Turbine and S-44 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-13 SCR System and/or A-14 Oxidation Catalyst System shall not exceed 500 hours during the commissioning period. Such operation of S-43 Gas Turbine and S-44 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 500 firing hours without abatement shall expire.

Verification: See verification in Condition AQ-1.

AQ-10 The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM10, and sulfur dioxide that are emitted by the Gas Turbines (S-41 & S-43) and Heat Recovery Steam Generators (S-42 & S-44) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in condition AQ-24.

Verification: See verification in Condition AQ-1.

AQ-11 Combined pollutant mass emissions from the Gas Turbines (S-41 & S-43) and Heat Recovery Steam Generators (S-42 & S-44) shall not exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-41 & S-43).

NO_x (as NO_2)	8,400 pounds per calendar day; 400 pounds per hour
CO	13,000 pounds per calendar day; 584 pounds per hour
POC (as CH_4)	535 pounds per calendar day
PM10	624 pounds per calendar day
SO_2	297 pounds per calendar day

Verification: See verification in Condition AQ-1.

AQ-12 Prior to the end of the Commissioning Period, the Owner/Operator shall conduct a District and CEC approved source test using external continuous emission monitors to determine compliance with Condition AQ-21. The source test shall determine NOx, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods.

Verification: Twenty working days before the execution of the source tests, the Owner/Operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this condition. The District and the CEC CPM will notify the Owner/Operator of any necessary

modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Owner/Operator shall incorporate the District and CEC CPM comments into the test plan. The Owner/Operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CEC CPM within 30 days of the source testing date.

Conditions for the Gas Turbines (S-41 & S-43) and the Heat Recovery Steam Generators (HRSGs; S-42 & S-44)

AQ-13 The Gas Turbines (S-41 and S-43) and HRSG Duct Burners (S-42 and S-44) shall be fired exclusively on natural gas with a maximum sulfur content no greater than 1 grain per 100 standard cubic feet. (BACT for SO2 and PM10)

Verification: The project owner shall maintain, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The monthly sulfur analysis shall be incorporated into the quarterly compliance reports as required in Condition AQ-14 and its verification.

AQ-14 The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-41 & S-42 and S-43 & S-44) shall not exceed 2,227 MM BTU per hour, averaged over any rolling 3-hour period. (PSD for NOx)

Verification: The project owner shall prepare quarterly reports for the preceding calendar quarter by January 30, April 30, July 30, and October 30, and an annual compliance report. These reports shall incorporate all information required and specified in Condition AQ-20 and its verification. The reports shall be submitted to the District and the CEC CPM.

AQ-15 The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-41 & S-42 and S-43 & S-44) shall not exceed 49,950 MM BTU per calendar day. (PSD for PM10)

Verification: See verification in Condition AQ-14.

AQ-16 The combined cumulative heat input rate for the Gas Turbines (S-41 & S-43) and the HRSGs (S-42 & S-44) shall not exceed 34,900,000 MM BTU per year. (Offsets)

Verification: See verification in Condition AQ-14.

AQ-17 The HRSG duct burners (S-42 and S-44) shall not be fired unless its associated Gas Turbine (S-41 and S-43, respectively) is in operation. (BACT for NOx)

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

AQ-18 Except as provided in Condition AQ-8, S-41 Gas Turbine and S-42 HRSG shall be abated by the properly operated and properly maintained A-11 Selective

Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-11 catalyst bed has reached minimum operating temperature. (BACT for NOx)

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

AQ-19 Except as provided in Condition AQ-9, S-43 Gas Turbine and S-44 HRSG shall be abated by the properly operated and properly maintained A-13 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-13 catalyst bed has reached minimum operating temperature. (BACT for NOx)

Verification: See verification of Condition AQ-18.

AQ-20 The Gas Turbines (S-41 & S-43) and HRSGs (S-42 & S-44) shall comply with requirements (a) through (h) under all operating scenarios, including duct burner firing mode and steam injection power augmentation mode. Requirements (a) through (h) do not apply during a gas turbine start-up or shutdown. (BACT, PSD, and Toxic Risk Management Policy)

a. Nitrogen oxide mass emissions (calculated in accordance with District approved methods as NO_2) at P-11 (the combined exhaust point for the S-41 Gas Turbine and the S-42 HRSG after abatement by A-11 SCR System) shall not exceed 20 pounds per hour or 0.0090 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated in accordance with District approved methods as NO_2) at P-12 (the combined exhaust point for the S-43 Gas Turbine and the S-44 HRSG after abatement by A-3 SCR System) shall not exceed 20 pounds per hour or 0.0090 lb/MM BTU (HHV) of natural gas fired. (PSD for NO_x)

b. The nitrogen oxide emission concentration at emission points P-11 and P-12 each shall not exceed 2.5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (BACT for NOx)

c. Carbon monoxide mass emissions at P-11 and P-12 each shall not exceed 0.013 lb/MM BTU (HHV) of natural gas fired or 29.22 pounds per hour, averaged over any rolling 3-hour period. (PSD for CO)

d. The carbon monoxide emission concentration at P-11 and P-12 each shall not exceed 6 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. (BACT for CO)

e. Ammonia (NH3) emission concentrations at P-11 and P-12 each shall not exceed 5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling

3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to A-11 and A-13 SCR Systems. The correlation between the gas turbine and HRSG heat input rates, A-11 and A-13 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-11 and P-12 shall be determined in accordance with permit condition #29. (TRMP for NH3)

f. Precursor organic compound (POC) mass emissions (as CH4) at P-11 and P-12 each shall not exceed 5.6 pounds per hour or 0.0025 lb/MM BTU of natural gas fired. (BACT)

g. Sulfur dioxide (SO_2) mass emissions at P-11 and P-12 each shall not exceed 6.18 pounds per hour or 0.0028 lb/MM BTU of natural gas fired. (BACT)

h. Particulate matter (PM10) mass emissions at P-11 and P-12 each shall not exceed 11 pounds per hour or 0.00588 lb./MM Btu of natural gas fired when the HRSG duct burners are not in operation. Particulate matter (PM10) mass emissions at P-11 and P-12 each shall not exceed 13 pounds per hour or 0.00584 lb./MM Btu of natural gas fired when the HRSG duct burners are in operation. (BACT)

Verification: The project owner shall submit to the District and CEC CPM, via the quarterly reports required by condition AQ-14, the following information. In addition, this information shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

a. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NO_x emission rate and ammonia slip.
b. Total plant operation time (hours), number of startups, hours in cold startup, hours in warm startup, hours in hot startup, and hours in shutdown.
c. Date and time of the beginning and end of each startup and shutdown period.
d. Average plant operation schedule (hours per day, days per week, weeks per year).
e. All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol.
f. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NO_x, CO, PM10, VOC and SO_x (including calculation protocol).
g. Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by the District.
h. A log of all excess emissions, including the information regarding malfunctions/breakdowns.
i. Any permanent changes made in the plant process or production, which would affect air pollutant emissions, and indicate when changes were made.
j. Any maintenance to any air pollutant control system (recorded on an as-performed basis).

AQ-21 The regulated air pollutant mass emission rates from each of the Gas Turbines (S-41 and S-43) during a start-up or a shutdown shall not exceed the limits established below. (PSD)

	Cold Start-Up (lb/event)	Hot Start-Up (lb/event)	Shutdown (lb/event)
Oxides of Nitrogen (as NO_2)	452	189	59
Carbon Monoxide (CO)	990	291	73
Precursor Organic Compounds (as CH_4)	109	26	6

Verification: See verification of Condition AQ-20.

AQ-22 The Gas Turbines (S-41 and S-43) shall not be in start-up mode simultaneously. (PSD)

Verification: See verification of Condition AQ-20.

AQ-23 Total combined emissions from the Gas Turbines and HRSGs (S-41, S-42, S-43, and S-44), including emissions generated during Gas Turbine start-ups and shutdowns shall not exceed the following limits during any calendar day:

a. 1,994 pounds of NO_x (as NO_2) per day (CEQA)
b. 3,602 pounds of CO per day (PSD)
c. 468 pounds of POC (as CH_4) per day (CEQA)
d. 624 pounds of PM10 per day (PSD)
e. 297 pounds of SO_2 per day (BACT)

Verification: See verification of Condition AQ-20.

AQ-24 Cumulative combined emissions from the Gas Turbines and HRSGs (S-41, S-42, S-43, and S-44), including emissions generated during gas turbine start-ups and shutdowns shall not exceed the following limits during any consecutive twelve-month period:

a. 174.3 tons of NO_x (as NO_2) per year (Offsets, PSD)
b. 259.1 tons of CO per year (Cumulative Increase)
c. 46.6 tons of POC (as CH_4) per year (Offsets)
d. 112.2 tons of PM10 per year (Offsets, PSD)
e. 48.5 tons of SO_2 per year (Cumulative Increase)

Verification: See verification of Condition AQ-20.

AQ-25 The maximum projected annual toxic air contaminant emissions (per condition 28) and Hazardous Air Pollutant (HAP) from the Gas Turbines and HRSGs combined (S-41, S-42, S-43, and S-44) shall not exceed the following limits:

a. 4,102 pounds of formaldehyde per year

b. 506 pounds of benzene per year

c. 38 pounds of specified polycyclic aromatic hydrocarbons (PAHs) per year

d. d. 20,000 pounds of hexane per year (US-CAA, Section 112(g))

unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This risk analysis shall be submitted to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will result in a cancer risk of not more than 1.0 in one million, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (TRMP)

Verification: Compliance with condition AQ-28 shall be deemed as compliance with this condition. In addition, approval by the District and the CEC CPM of the reports prepared for this condition will constitute a verification of compliance with this condition.

AQ-26 The owner/operator shall demonstrate compliance with conditions AQ-14 through 17, 20(a) through 20(d), 21, 23(a), 23(b), 24(a), and 24(b) by using properly operated and maintained continuous monitors (during all hours of operation including equipment Start-up and Shutdown periods) for all of the following parameters:

a. Firing Hours and Fuel Flow Rates for each of the following sources: S-41 & S-42 combined and S-43 & S-44 combined.
b. Carbon Dioxide (CO_2) or Oxygen (O_2) Concentrations, Nitrogen Oxides (NOx) Concentrations, and Carbon Monoxide (CO) Concentrations at each of the following exhaust points: P-11 and P-12.
c. Ammonia injection rate at A-11 and A-13 SCR Systems
d. Steam injection rate at S-41 & S-43 Gas Turbine Combustors

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

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

e. Heat Input Rate for each of the following sources: S-41 & S-42 combined and S-43 & S-44 combined.
f. Corrected NO_x concentrations, NO_x mass emissions (as NO_2), corrected CO concentrations, and CO mass emissions at each of the following exhaust points: P-11 and P-12.

Applicable to emission points P-11 and P-12, the owner/operator shall record the parameters specified in conditions 26(e) and 26(f) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

g. Total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.
h. On an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and associated HRSG combined and all four sources (S-41, S-42, S-43, and S-44) combined.
i. The average NOx mass emissions (as NO_2), CO mass emissions, and corrected NOx and CO emission concentrations for every clock hour and for every rolling 3-hour period.
j. On an hourly basis, the cumulative total NOx mass emissions (as NO_2) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine and associated HRSG combined, and all four sources (S-41, S-42, S-43, and S-44) combined.
k. For each calendar day, the average hourly Heat Input Rates, Corrected NOx emission concentrations, NOx mass emissions (as NO_2), corrected CO emission concentrations, and CO mass emissions for each Gas Turbine and associated HRSG combined.
l. On a daily basis, the cumulative total NOx mass emissions (as NO_2) and cumulative total CO mass emissions, for the previous consecutive twelve month period for all four sources (S-41, S-42, S-43, and S-44) combined.

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

Verification: At least 60 days before the initial operation, the owner/operator shall submit to the CEC CPM a plan on how the measurements and recordings required by this condition will be performed.

AQ-27 To demonstrate compliance with conditions AQ-20(f), 20(g), 20(h), 23(c) through 23(e), and 24(c) through 24(e), the owner/operator shall calculate and record on a daily basis, the Precursor Organic Compound (POC) mass emissions, Fine Particulate Matter (PM10) mass emissions (including condensable particulate matter), and Sulfur Dioxide (SO2) mass emissions from each power train. The owner/operator shall use the actual Heat Input Rates calculated pursuant to condition AQ-26, actual Gas Turbine Start-up Times, actual Gas Turbine Shutdown Times, and CEC and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

a. For each calendar day, POC, PM10, and SO_2 emissions shall be summarized for: each power train (Gas Turbine and its respective HRSG combined) and all four sources (S-41, S-42, S-43, and S-44) combined.
b. On a daily basis, the 365 day rolling average cumulative total POC, PM10, and SO_2 mass emissions, for all four sources (S-41, S-42, S-43, and S-44) combined. (Offsets, PSD, Cumulative Increase)

Verification: See verification of Condition AQ-20.

AQ-28 To demonstrate compliance with Condition AQ-25, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAHs. Maximum projected annual emissions shall be calculated using the maximum Heat Input Rate of 34,900,000 MM BTU/year and the highest emission factor (pounds of pollutant per MM BTU of Heat Input) determined by any source test of the S-41 & S-43 Gas Turbines and/or S-42 & S-44 Heat Recovery Steam Generators. If this calculation method results in an unrealistic mass emission rate (the highest emission factor occurs at a low firing rate) the applicant may use an alternate calculation, subject to District approval. (TRMP)

Verification: Verification of Condition AQ-20.

AQ-29 Within 60 days of initial operation of the CCCP Unit 8, the owner/operator shall conduct a District-approved source test on exhaust point P-11 or P-12 to determine the corrected ammonia (NH3) emission concentration to determine compliance with condition AQ-20(e). The source test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, A-11 or A-13 SCR System ammonia injection rate, and the corresponding NH3 emission concentration at emission point P-11 or P-12. The source test shall be conducted over the expected operating range of the turbine and HRSG (including, but not limited to minimum, 70%, 85%, and 100% load) to establish the range of ammonia injection rates necessary to achieve NOx emission reductions while maintaining ammonia slip levels. Continuing compliance with condition AQ-20(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (TRMP)

Verification: Source test results shall be submitted to the District and the CEC CPM within 60 days of conducting the tests.

AQ-30 Within 60 days of initial operation of the CCCP Unit 8 and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-11 and P-12 while each Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum load (including steam injection power augmentation mode) to determine compliance with Conditions AQ-20(a), (b), (c), (d), (f), (g), and (h), while each Gas Turbine and associated Heat Recovery Steam Generator are operating at minimum load to determine compliance with Conditions AQ-20(c) and (d), and to verify the accuracy of the continuous

emission monitors required in condition AQ-26. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and particulate matter (PM10) emissions including condensable particulate matter. (BACT, offsets)

Verification: Approval of the source test protocols, as required in condition AQ-31, and the source test reports shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 60 days of the date of the tests.

AQ-31 The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the Owner/Operator shall measure the contribution of condensable PM (back half) to the total PM10 emissions. However, the Owner/Operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. (BACT)

Verification: Source test results shall be submitted to the District and the CEC CPM within 60 days of conducting the tests.

AQ-32 Within 60 days of initial operation of the CCPP Unit 8 and on an biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on exhaust point P-11 or P-12 while the Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum allowable operating rates to demonstrate compliance with Condition AQ-25. If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to condition AQ-28 for any of the compounds listed below are less than the BAAQMD Toxic Risk Management Policy trigger levels shown, then the owner/operator may discontinue future testing for that pollutant:

Benzene	≤	26.8 pounds/year
Formaldehyde	≤	132 pounds/year
Specified PAHs	≤	0.18 pounds/year (TRMP)

Verification: The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the owner/operator plans to conduct source testing as required by this condition. Source test results shall be submitted to the District and the CEC CPM within 60 days of conducting the test.

AQ-33 The owner/operator of the CCPP Unit 8 shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Enforcement Division Policies & Procedures Manual. (Regulation 2-6-502)

Verification: See verification of Condition AQ-20.

AQ-34 The owner/operator of the CCPP Unit 8 shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The owner/operator shall make all records and reports available to District and the CEC CPM staff upon request. (Regulation 2-6-501)

Verification: During site inspection, the owner/operator shall make all records and reports available to the District, ARB, EPA and CEC staffs.

AQ-35 The owner/operator of the CCPP Unit 8 shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the owner/operator shall submit written notification (facsimile is acceptable) to the Enforcement Division within 96 hours of the violation of any permit condition. (Regulation 2-1-403)

Verification: Submittal of these notifications as required by this condition is the verification of these permit conditions. In addition, as part of the Air Quality Reports of Condition AQ-20, the owner/operator shall include information on the dates when these violations occurred and when the owner/operator notified the District and the CEC CPM.

AQ-36 The stack height of emission points P-11 and P-12 shall each be at least 195 feet above grade level at the stack base. (PSD, TRMP)

Verification: Thirty (30) days prior to start of stack construction, the project owner/operator shall provide the District and CEC CPM an “approved for construction” drawing showing the appropriate stack height and location of sampling ports and platforms. The project owner/operator shall make the site available to the District, EPA and CEC staff for inspection.

AQ-37 The Owner/Operator of CCPP Unit 8 shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall be subject to BAAQMD review and approval. (Regulation 1-501)

Verification: See verification of Condition AQ-36.

AQ-38 Within 180 days of the issuance of the Authority to Construct for the CCPP Unit 8, the Owner/Operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous monitors, sampling ports, platforms, and source tests required by conditions AQ-26, 29, 30, and 32. All source testing and monitoring shall be conducted in accordance with the BAAQMD Manual of Procedures. (Regulation 1-501)

Verification: The project owner/operator shall notify the CEC CPM within 7 days of receiving the District's approval for the source testing and monitoring plan.

AQ-39 Prior to the issuance of the BAAQMD Authority to Construct for the CCPP Unit 8, the Owner/Operator shall demonstrate that valid emission reduction credits in the amount of 200.5 tons/year of Nitrogen Oxides, 53.6 tons/year of Precursor Organic Compounds or equivalent (as defined by District Regulations 2-2-302.1 and 2-2-302.2), and 337 tons of Sulfur Oxides, under their control through enforceable contracts, option to purchase agreements, or equivalent binding legal documents. (Offsets)

Verification: Prior to the issuance of an Authority to Construct, the Owner/Operator shall provide copies of all emission reduction credits certificates to the District and the CEC CPM.

AQ-40 Prior to the start of construction of the CCPP Unit 8, the Owner/Operator shall provide to the District valid emission reduction credit banking certificates in the amount of 200.5 tons/year of Nitrogen Oxides, 53.6 tons/year of Precursor Organic Compounds or equivalent (as defined by District Regulations 2-2-302.1 and 2-2-302.2) and 337 tons of Sulfur Oxides. (Offsets)

Verification: See verification of Condition AQ-39.

AQ-41 Pursuant to BAAQMD Regulation 2, Rule 6, section 404.3, the owner/operator of the CCPP Unit 8 shall submit an application to the BAAQMD for a significant revision to the existing Major Facility Review Permit prior to commencing operation. (Regulation 2-6-404.3)

Verification: The owner/operator shall submit to the CEC CPM copies of the Federal (Title IV) Acid Rain and (Title V) Operating Permit within 30 days after they are issued by the District.

AQ-42 Pursuant to 40 CFR Part 72.30(b)(2)(ii) of the Federal Acid Rain Program, the owner/operator of the CCPP Unit 8 shall not operate either of the gas turbines until either: 1) a Title IV Operating Permit has been issued; 2) 24 months after a Title IV Operating Permit Application has been submitted, whichever is earlier. (Regulation 2, Rule 7)

Verification: See verification of Condition AQ-41.

AQ-43 The CCPP Unit 8 shall comply with the continuous emission monitoring requirements of 40 CFR Part 75. (Regulation 2, Rule 7)

Verification: At least 30 days prior to commencement of construction, the project owner/operator shall seek approval from the District for an emission monitoring plan.

AQ-44 The owner/operator shall take monthly samples of the natural gas combusted at the CCPP Unit 8. The samples shall be analyzed for sulfur content using District-approved laboratory methods or the owner/operator shall obtain certified analytical results from the gas supplier. The sulfur content test results shall be retained on site for a minimum of five years from the test date and shall be utilized to satisfy the requirements of 40 CFR Part 60, subpart GG. Sulfur content shall be no more than 1.0 grains/100scf. (cumulative increase)

Verification: See verification of Condition AQ-19.

AQ-45 The cooling towers shall be properly installed and maintained to minimize drift losses. The cooling towers shall be equipped with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0005%. The maximum total dissolved solids (TDS) measured at the base of the cooling towers or at the point of return to the wastewater facility shall not be higher than 5,666 ppmw (mg/l). The owner/operator shall sample the water at least once per day. (PSD)

Verification: At least 30 days prior to commencement of cooling tower construction, the project owner/operator shall provide to the District and CEC CPM a copy of the cooling tower manufacturer's specifications demonstrating the 0.0005 percent drift rate.

AQ-46 The owner/operator shall perform a visual inspection of the cooling tower drift eliminators at least once per calendar year, and repair or replace any drift eliminator components which are broken or missing. Prior to the initial operation of the CCPP Unit 8, the owner/operator shall have the cooling tower vendor's field representative inspect the cooling tower drift eliminators and certify that the installation was performed in a satisfactory manner. The CPM may, in years 5 and 15 of cooling tower operation, require the owner/operator to perform a source test to determine the PM10 emission rate from the cooling tower to verify continued compliance with the vendor-guaranteed drift rate specified in condition AQ-45. (PSD)

Verification: The project owner/operator shall keep records of all tower inspection and shall make them available for the District and CEC CPM upon request.

AQ-47 The Fuel Gas Preheater (S-45) shall not be operated more than 16 hours in any day. (BACT)

Verification: See Verification of Condition AQ-20.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
AIR QUALITY

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Air Act	The federal Clean Air Act requires any new major stationary sources of air pollution and any major modifications to major stationary sources to obtain a construction permit before commencing construction. This process is known as New Source Review (NSR). Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in Title 40, Code of Federal Regulations, section 70. A Title V permit contains all of the requirements specified in different air quality regulations, which affect an individual project. The U.S. Environmental Protection Agency (EPA) has reviewed and approved the Bay Area Air Quality Management District's regulations and has delegated to the District the implementation of the federal Prevention of Significant Deterioration (PSD), Non-attainment NSR, and Title V programs. The District implements these programs through its own rules and regulations, which are, at a minimum, as stringent as the federal regulations. The CCPP Unit 8's gas turbines are also subject to the federal New Source Performance Standards (NSPS). These standards include a NO_x emissions concentration of no more than 75 parts per million (ppm) at 15 percent excess oxygen (ppm@15% O_2), and a SO_x emissions concentration of no more than 150 ppm@15% O_2.
STATE	
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 cause injury, detriment, nuisance, or annoyance to any considerate number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."
LOCAL	
Bay Area Air Quality Management District (BAAQMD), Regulation 2	Specifically applicable to the project are Rules 1 (General Requirements), 2 (New Source Review), and 7 (Acid Rain). (See SA pp. 44-45)
BAAQMD, Regulation 6, Particulate Matter and Visible Emission	The purpose of this regulation is to limit the quantity of particulate matter in the atmosphere. Sections 301 and 310 of Regulation 6 are directly applicable to this project. (SA pp. 44-45)
BAAQMD, Regulation 9	Rule 1 (Limitations) and Rule 9 (Nitrogen Oxides from Stationary Gas Turbines) are directly applicable to this project. (SA pp. 45-46)
BAAQMD, Regulation 10, Gas Turbines, Standards of Performance for New Stationary Sources	This rule adopts the national maximum emission limits (40 C.F.R. §60) which are 75 ppm NO_x and 150 ppm SO_2 at 15 percent O_2. 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.

PUBLIC HEALTH

PUBLIC HEALTH - GENERAL

Related topics to public health are addressed in the following sections: **AIR QUALITY** (criteria air pollutants)**; HAZARDOUS MATERIALS MANAGEMENT; TRANSMISSION LINE SAFETY AND NUISANCE; SOIL AND WATER RESOURCES;** and **WASTE MANAGEMENT**.

Factors potentially affecting public health include existing air pollution, environmental contamination on-site, and fire hazards. Sensitive receptors (i.e., schools, hospitals, daycare facilities, and long-term health care facilities) near a proposed project could be impacted by on-site activities. The location of sensitive receptors located within three miles of the proposed project are shown in AFC Map 8.6-1 and listed in AFC Table 8.12-1 (SA p. 105). It should be noted that there were no issues identified with soil contamination. Thus, earth-moving activities during construction will not disperse toxic substances in the soil and thus will not significantly impact public health.

Construction Impacts

The operation of construction equipment will result in air emissions from diesel-fueled engines. Exposure to diesel exhaust causes both short- and long-term adverse health effects. Short-term effects can include increased cough, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Long-term effects can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Since assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a longer time period, typically from seven to seventy years, the construction health effects analysis focuses on the potential for adverse health effects from acute (one-hour) exposure to diesel exhaust. AFC Appendix C4 lists diesel-powered equipment that will be used on-site during project construction. Diesel emissions are generated from sources such as off-road trucks, backhoes, loaders, bulldozers, cranes, welding machines, and air compressors. The one-hour PM10 maximum impact from this equipment exhaust was modeled to be 219.3 $\mu g/m^3$ (Southern 2000o, Response to data request 24). The location of the maximum impact is on the eastern boundary of the CCPP site, just south of the PG&E switchyard (SA p. 109). Potential health effects of this impact are discussed below in the **Noncancer Hazard** section below.

Operation Impacts

Emissions Sources and Levels

During operation, potential public health risks are related to natural gas combustion emissions from the gas turbines and duct burners, and noncombustion emissions from the cooling tower. Noncriteria emissions from the cooling tower originate from contaminants in the cooling source water that become entrained in liquid water droplets emitted as cooling tower drift. The CCPP Unit 8 project will use high efficiency drift eliminators that limit the amount of drift loss. Steam emitted from the cooling towers is distilled water, and will not contain contaminants (SA pp. 110-111).

To calculate maximum hourly and annual emissions, the maximum natural gas consumption rate was used. Annual turbine emissions were estimated by assuming that both turbines would operate simultaneously under full load conditions and full duct burner firing rate for the entire year. The turbine exhaust stack parameters used were those that the screening analysis (Southern 2000a, AFC Tables 8.1-13,14) showed to have the highest ground level impact per unit emission rate, regardless of whether those parameters were associated with full load operation of the turbines. Annual cooling tower emissions were estimated by assuming that the cooling tower will operate under full load conditions for the entire year. Ambient concentrations of toxic substances were estimated using a screening air dispersion model (see FSA **AIR QUALITY** section), and assuming conditions that result in maximum impacts. Finally, ambient concentrations were used in conjunction with RELs and cancer unit risk factors to estimate health effects which might occur from exposure to facility emissions. Exposure pathways, or ways in which people might come into contact with toxic substances, include inhalation, dermal (through the skin) absorption, soil ingestion, and mother's milk. Inhalation is the dominant pathway contributing to exposure and associated potential health effects. If the screening level analysis shows health hazards and risk below significant levels, additional pathways, such as ingestion of food (locally grown plants, fish, etc.), need not be considered. These would only be included in refined health risk assessments (SA p. 112).

Noncancer Hazard

Construction

The difference between the modeled maximum impact of 219.3 $\mu g/m^3$ and the derived comparison value of 50 $\mu g/m^3$ indicates a potential for short-term health effects from diesel exhaust to nearby residents during construction. Also, there continue to be exceedences of California's 24-hour PM10 standard, indicating the potential for short-term health impacts from additional PM10 emissions. Therefore, measures to mitigate PM10 emissions and associated health impacts are warranted (Condition of Certification AQC-2), including the installation of particulate traps on all suitable stationary diesel equipment. These catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter by approximately 90 percent. Although not strictly quantifiable, these measures will serve to reduce potential short-term health impacts to the extent feasible (SA pp. 112-113).

Operation

The screening health risk assessment for the project, including combustion and noncombustion emissions, resulted in a maximum acute hazard index of 0.17 about 4.9 miles northwest of the proposed site across the Sacramento River. The chronic hazard index at the point of maximum impact is 0.04. The location of the maximum chronic hazard is about 1.5 mile east-southeast of the CCPP site (Southern 2000o, Table 8.6-5 and Southern 2000a, Figure 8.1-19). Both acute and chronic hazard indices are under the REL of 1.0, indicating that no short- or long-term adverse health effects are expected (SA pp. 113-114).

Cancer Risk

PUBLIC HEALTH Table 3 in the FSA (SA p. 114) shows an estimated total worst-case individual cancer risk of 0.86 in one million. This is the risk at the location where long-term pollutant concentrations are calculated to be the highest, and is at the eastern boundary of the CCPP site. At a level of less than one additional chance in one million of cancer over a lifetime, this is considered a negligible impact. (SA p. 114)

CUMULATIVE IMPACTS

The worst-case chronic and acute noncancer impacts from the CCPP Unit 8 project are well below the significance level of 1.0, as are those from the Los Medanos and Delta Energy Centers. The cumulative noncancer impact from these facilities are insignificant, even if they were to occur at the same location. As with cancer risk, the hazard is lower at all other locations, and cumulative impacts at other locations would also be less than significant.

FINDING

With implementation of Conditions of Certification, no significant adverse cancer, or short- or long-term noncancer health effects from project emissions are expected. There will be no significant impact upon any individual in the affected area, including any member of any minority population.

CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall perform a visual inspection of the cooling tower drift eliminators once per calendar year, and repair or replace any drift eliminator components which are broken or missing. Prior to initial operation of the project, the project owner shall have the cooling tower vendor's field representative inspect the cooling tower drift eliminator and certify that the installation was performed in a satisfactory manner. The CPM may, in years 5 and 15 of project operation, require the project owner to perform a source test of the PM10 emissions rate from the cooling tower to verify continued compliance with the vendor guaranteed drift rate.

Verification: The project owner shall include the results of the annual inspection of the cooling tower drift eliminators and a description of any repairs performed in the next required quarterly compliance report. The initial compliance report will include a copy of the cooling tower vendor's field representative's inspection report of the drift eliminator installation. If the CPM requires a source test as specified in Public Health-1, the project owner shall submit to the CPM for approval a detailed source test procedure 60 days prior to the test. The project owner shall incorporate the CPM's comments, conduct testing, and submit test results to the CPM within 60 days following the tests.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
PUBLIC HEALTH

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Air Act section 112 (42 U.S. Code section 7412)	Section 112 requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology.
STATE	
California Health and Safety Code section 39650 et seq.	These sections 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	This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
LOCAL	
Bay Area Air Quality Management District Rule 2-1-316	This rule requires a risk assessment or risk screening analysis to be performed for new or modified facilities that emit one or more toxic air contaminants that exceed specified amounts.

HAZARDOUS MATERIALS MANAGEMENT

HAZARDOUS MATERIALS MANAGEMENT - GENERAL

The only hazardous material stored at the CCPP Unit 8 in quantities exceeding the reportable amounts defined in the California Health and Safety Code, section 25532 (j), is aqueous ammonia (29 percent ammonia in aqueous solution; see Tables 8-12.2, 8.12-3, and 8.12-4 of the Application for Certification [AFC]). Other on-site hazardous materials stored in smaller quantities, such as mineral and lubricating oils, corrosion inhibitors, and water conditioners pose no significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, and/or their environmental mobility. Although no natural gas is stored, the project will also involve the construction and operation of a natural gas pipeline and handling of large amounts of natural gas that poses some risk of both fire and explosion. However, the gas line will not be lengthy and will be attached to an existing on-site main. The CCPP Unit 8 will also require the transportation of aqueous ammonia to the facility.

SMALL QUANTITY HAZARDOUS MATERIALS

During the construction phase of the project, the only hazardous materials proposed for use include phosphate or nitrate cleaning solutions, cleaning solvents, antifreeze, and pesticides. Any impact of spills or other releases of these materials will be limited to the site due to the small quantities involved and thus no further analysis of construction phase activities appears warranted.

The existing use of a small quantity of hydrogen gas (237 lbs.) poses a risk of explosion. However, the small quantity present and the results of previous modeling of the blast effects of a hydrogen tank explosion (for a similar facility in California) demonstrate that any blast effect will be confined to the site and not have off-site impacts. The applicant indicates that the hydrogen cylinders will be stored in an area isolated from potential ignition sources (SA p. 161).

In addition, the potential for public health impacts would not be significant if the applicant uses those scale inhibitors and corrosion controllers that contain only the active ingredients on the list in Appendix C (list of chemicals that will be used at the power plant) of the FSA. (SA p. 160)

LARGE QUANTITY HAZARDOUS MATERIALS

According to the applicant, more than 15,000 gallons of sodium hydroxide and 12,000 pounds of 92 percent sulfuric acid will be used and stored on-site. These materials do not pose a risk of off-site impacts, because they have relatively low vapor pressures and thus spills would be confined to the site. Because of public concern at another proposed energy facility in 1995, staff conducted a quantitative assessment of the potential for impact associated with sulfuric acid use, storage, and transportation, and concluded that no public hazard impacts would occur. However, in order to protect against risk of fire, Condition of Certification **HAZ-5** will

require the applicant to ensure that no combustible or flammable material is stored, used, or transported within 100 feet of the sulfuric acid tank.

The aqueous mixture of sodium hypochlorite will likewise have a low potential to affect the off-site public because both its vapor pressure and the concentration of hypochlorite are low (12.5 percent). Hypochlorite is used at many such facilities as a substitute for chlorine gas, which is much more toxic and much more likely to migrate off-site because it is in concentrated gaseous form. Thus, the use of a water solution of sodium hypochlorite is much safer to use than the alternative: chlorine gas. However, accidental mixing of sodium hypochlorite with acids or aqueous ammonia could result in toxic gases. Given the large volumes of both aqueous ammonia (60,000 gals) and sodium hypochlorite (7610 gals) proposed for storage at this facility, the chances for accidental mixing of the two – particularly during transfer from delivery vehicles to storage tanks – should be reduced as much as possible. Condition of Certification **HAZ-3** requires an additional section within the required Safety Management Plan for delivery of aqueous ammonia to prevent such mixing.

Large quantities (>100M gals) of petroleum-containing hazardous materials are presently used on this site. Fuels such as fuel oil #6, mineral oil, lube oil, and diesel fuel are all of very low volatility and impacts of spills are expected to remain on-site. A Spill Prevention Control and Countermeasure Plan is required by Federal Regulations and has already been prepared for these petroleum-containing hazardous materials.

NATURAL GAS

While natural gas will be used in significant quantities, it will not be stored on-site. In particular, gas explosions can occur in the Heat Recovery Steam Generator (HRSG) and during start-up. The National Fire Protection Association (NFPA 85A) requires 1) the use of double block and bleed valves for gas shut-off; 2) automated combustion controls; and 3) burner management systems. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures will require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. The Safety Management Plan proposed by the applicant will address the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error. Since the proposed facility will not require the installation of any new gas pipelines off-site, impacts from a break in the pipeline are limited to the existing pipelines already in use in the area or in the new pipeline (approximately 1500 feet) to be installed on-site. The design of the natural gas pipeline is governed by laws and regulations discussed in the **FACILITY DESIGN** section. Therefore, the use of natural gas at the proposed facility will not result in adverse off-site impacts (SA p. 162).

AQUEOUS AMMONIA

Aqueous ammonia (stored on-site in large amounts) will be used in controlling the emission of oxides of nitrogen (NO_x) from the combustion of natural gas in the facility. Aqueous ammonia is the only hazardous material that may pose a risk of off-site impacts. The accidental release of aqueous ammonia can result in the formation and release of toxic gases (due to relatively high vapor pressure) in the event of a spill even without interaction with other chemicals.

Three 20,000-gallon tanks will be used to store the proposed 148,000 lbs. of 29.4 percent aqueous ammonia (20,000 gallons in each tank). However, as with aqueous hypochlorite, the use of aqueous ammonia instead of the much more hazardous anhydrous ammonia poses far less risk (SA pp. 162-166).

The AFC (section 8-12.2.2.2) provided the results of modeling for a worst case and alternative case accidental release of aqueous ammonia. In conducting the analysis, it was assumed that spilled material would be contained in the covered basin below the storage vessel and below the tanker truck pad. The applicant further assumed a wind speed of 1.0 meters per second and atmospheric stability category F stability. The US EPA SCREEN3 air dispersion model was used to estimate airborne concentrations of ammonia. This analysis was designed to predict the maximum possible impacts based on distance from the storage tank without regard to specific direction of transport by the wind. The modeling results indicated that ground level airborne ammonia concentrations exceeding 75 PPM would be confined to the project site (less than 666 feet from the storage tanks for the worst-case and less than 272 feet for the alternative scenario) (SA p. 163).

Staff also modeled the estimated ammonia concentration at approximately 800 feet from the storage tank if the worst-case spill occurred using the EPA SCREEN3 air dispersion model. At 800 feet, the estimated maximum airborne concentration of ammonia would be approximately 5.9 ppm. A review of Appendix B of the AFC shows that most people would not even notice an odor at this level and that no adverse health effects would occur.

Hazardous materials including aqueous ammonia, sulfuric acid, and sodium hypochlorite will be transported to the facility via tanker truck. While many types of hazardous materials will be transported to the site, transport of aqueous ammonia poses the predominance of risk associated with such transport and the potential for spills due to accidents. If aqueous ammonia were released from a delivery vehicle (i.e., a tanker truck) during transport, it could result in hazardous ambient concentrations. The extent of impact in the event of such a release would depend on the location and on the rate of dispersion of ammonia vapor from the surface of the aqueous ammonia pool. Extensive regulatory programs apply to shipment of hazardous materials on California Highways that ensure safe handling in general transportation (see the Federal Hazardous Materials Transportation Law [49 U.S.C. §5101 et seq], the US Department of Transportation Regulations [49 C.F.R. Subpart H, §172-700], and California DMV Regulations on Hazardous Cargo). These regulations also address the issue of driver competence (SA p. 164). Condition of Certification **HAZ-6** ensures that regardless of which vendor supplies the aqueous ammonia, delivery will be made in a tanker, which meets or exceeds the specifications described by these regulations. In addition, the risk associated with transportation of other hazardous materials to the proposed facility does not significantly increase the risk of impact beyond that associated with transporting aqueous ammonia.

SEISMIC ISSUES

An evaluation was conducted to determine the possibility that an earthquake could cause the failure of a hazardous materials storage tank. Information obtained after the January 1994 Northridge earthquake showed that some damage was caused to several large storage tanks and smaller tanks associated with the water treatment system of a cogeneration facility. Those

tanks with the greatest damage – including seam leakage – were older tanks while the newer tanks sustained displacements and failures of attached lines. Therefore, staff conducted an analysis of the codes and standards, which should be followed in adequately designing and building storage tanks and containment areas to withstand a large earthquake. Referring to the **GEOLOGIC HAZARDS** and **FACILITY DESIGN** sections in the AFC, staff notes that the proposed facility will be designed and constructed to the applicable standards of the Uniform Building Code for Seismic Zone 4 (SA pp. 166-167).

CUMULATIVE IMPACTS

The facility, as proposed by the Applicant and with the additional mitigation measures proposed by the Staff, poses a minimal risk of accidental release. Therefore, the direct impacts of the project will not add to any existing risk of accidental release (SA p. 167).

FINDING

The adoption of the Conditions of Certification, presented herein, would ensure that the project is designed, constructed, and operated to comply with applicable LORS and to protect the public from significant risk of exposure to an accidental ammonia release or other hazardous materials release.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material at the CCPP Unit 8 in any quantity or strength not listed in Appendix C, below, unless approved in advance by the CPM.

Verification: The project owner shall provide to the Compliance Project Manager (CPM), in the Annual Compliance Report, a list of all hazardous materials contained at the facility.

HAZ-2 The project owner shall provide a Risk Management Plan to Contra Costa County and the CPM for review at the time the plans are first submitted to the U.S. Environmental Protection Agency (EPA). The project owner shall include all recommendations of Contra Costa County and the CPM in the final document. A copy of the final plans, including all comments, shall be provided to Contra Costa County and the CPM once approved by EPA.

Verification: At least sixty days prior to the delivery of aqueous ammonia to the ammonia storage tanks which will be used by the CCPP Unit 8 facility the project owner shall provide the final plans listed above and accepted by Contra Costa County to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all

measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least sixty days prior to the delivery of aqueous ammonia to the ammonia storage tanks which will be used by the CCPP Unit 8 facility , the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 150% of the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm.

Verification: At least sixty days prior to delivery of aqueous ammonia to the storage tanks, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The project owner shall ensure that no combustible or flammable material is stored, used, or transported within 100 feet of the sulfuric acid tank.

Verification: At least thirty (30) days prior to receipt of sulfuric acid on-site for use in Unit 8, the Project Owner shall provide to the CPM for review and approval copies of the facility design drawings 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-6 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

Verification: At least thirty (30) days prior to receipt of aqueous ammonia on site, the project owner shall submit to the CPM for review and approval letters from the supply vendors indicating the specifications of the transport vehicles to be used in the delivery of aqueous ammonia to the site.

HAZ-7 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM (Highway 160 to Wilbur Ave. to the facility). An alternate route may be used following approval by the CPM.

Verification: At least thirty (30) days prior to receipt of any hazardous materials on site, the project owner shall submit to Contra Costa County for review and comment and to the CPM for review and approval, a copy of the letter to be mailed to the vendors. The letter shall state the required transportation route limitation.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
HAZARDOUS MATERIALS MANAGEMENT

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499, §301,100 Stat. 1614 [1986]), also known as SARA Title III	Contains the Emergency Planning and Community Right To Know Act (EPCRA) as codified in 42 U.S.C. §11001 et seq. This Act requires that certain information about any release to the air, soil, or water of an extremely hazardous material must be reported to state and local agencies.
Clean Air Act (CAA) of 1990 (42 U.S.C. §7401 et seq. as amended)	Established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials.
CAA section on Risk Management Plans - codified in 42 U.S.C. §112(r)	requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of the CAA are reflected in the California Health and Safety Code, section 25531 et seq.
Hazardous Waste Contingency Plan Title 40 C.F.R., Part 112.7	Currently, due to the high volume of petroleum-containing hazardous materials already in place on this site, Mirant is required to have a Spill Prevention Control and Countermeasure Plan in place.
STATE	
California Accidental Release Prevention Program (Cal-ARP) - Health and Safety Code, section 25531	- directs facility owners storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).
Section 25503.5 of the California Health and Safety Code	Requires facilities which store or use hazardous materials to prepare and file a Business Plan with the local Certified Unified Program Authority (CUPA), in this case Contra Costa County. This Business Plan is required to contain information on the business activity, the owner, a hazardous materials inventory, facility maps, an Emergency Response Contingency Plan, an Employee Training Plan, and other recordkeeping forms.
Title 8, California Code of Regulations, Section 5189	Requires facility owners to develop and implement effective safety management plans to insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.
Title 8, California Code of Regulations, section 458 and sections 500 – 515	Set forth requirements for design, construction and operation of vessels and equipment used to store and transfer anhydrous ammonia. These sections generally codify the requirements of several industry codes, including the ASME Pressure Vessel Code, ANSI K61.1 and the National Boiler and

	Pressure Vessel Inspection Code. While these codes apply to anhydrous ammonia, they may also be used to design storage facilities for aqueous ammonia.
California Health and Safety Code, Section 41700	Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
LOCAL	
Uniform Fire Code (UFC), Articles 79 and 80	The California Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.
Contra Costa County Zoning Ordinance 98-48	Requires a Safety Plan and a Risk management Plan to be prepared and submitted to the County Planning Department. In regards to seismic safety issues, the site is located in Seismic Risk Zone 4. Construction and design of buildings and vessels storing hazardous materials must conform to the 1997 Uniform Building Code, the 1998 California Building Code, and the Contra Costa County Building Code.

WASTE MANAGEMENT

WASTE MANAGEMENT - GENERAL

The Phase I Environmental Site Assessment (ESA) for the CCPP found several recognized environmental conditions at the site and concluded that there is a potential for soil and groundwater contamination. In order to further characterize the site and investigate issues identified in the Phase I ESA, a Phase II ESA (Southern 2000c) was conducted, which involved subsurface testing of soil and groundwater and evaluation of data collected to determine if the soil or groundwater would require remediation to protect human health and the environment or to comply with environmental laws and regulations. The Phase II investigations showed that several contaminants exist in soil and groundwater at the proposed site, including volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), metals, and polychlorinated biphenyls (PCBs). To determine the extent to which the site would need to be cleaned up, the Phase II ESA presented results of a baseline health risk assessment and a review of cleanup levels that could be applicable to the project. The purpose of the risk assessment was to determine if concentrations of chemicals detected in soil and groundwater present an unacceptable risk to human health and the environment. The acceptable risk level for cancer-causing chemicals was assumed to be ten in one million, and for all others, a hazard index of one (please see the **Public Health** section for a discussion of risk levels and hazard indices). The risk assessment showed there to be no unacceptable risks due to current conditions at the site.

CONSTRUCTION

Project site preparation and facility construction will generate both non-hazardous and hazardous wastes. Hazardous materials were not known to be used or stored at on-site structures (SA. p. 187). Where possible, the structures to be removed will be salvaged and sold. Residual demolition waste will be transported to an approved construction waste landfill (Southern 2000a, AFC p. 2-53). Based on results of the Phase II ESA, contaminated soil encountered during excavation will not be a likely source of significant quantities of hazardous waste. Of 21 samples analyzed, only one, about 50 feet from the planned excavation, showed an elevated level of total petroleum hydrocarbons. No other chemical constituents were identified at elevated levels in these borings (Southern 2000o, Response to data request 102). Soil from the existing fill pile, which will be used to prepare the site, was also sampled and analyzed during the Phase II ESA, and was determined not to be contaminated (Southern 2000c, Table 3-1a) (SA p. 187-188).

The applicant estimates that about 150 tons of nonhazardous wastes would be generated (Southern 2000a, AFC p. 8.13-2). In addition, about 100 tons of concrete waste and 50 tons of scrap metal would be generated during construction (Southern 2000a, AFC p. 8.13-2). Concrete waste would be used onsite to the extent possible as fill material, and the majority of metal would be recycled. Construction-related solid waste would be temporarily stored in onsite dumpsters and picked up for disposal by Pittsburg Disposal Services, Inc. (PDI). The waste would be taken to PDI's transfer station, where recyclable materials would be removed and the residue transported to an approved landfill.

Hazardous wastes, likely to be generated during construction, include waste oil and grease, paint, spent solvent, mercury, and cleanup materials from spills of hazardous substances. AFC Table 8.13-3 lists hazardous wastes expected to be generated, their approximate quantities, and management methods. Hazardous wastes will be collected in hazardous waste accumulation containers near the point of generation. The containers will be taken to the construction contractor's hazardous waste storage area and within 90 days will either be recycled or transported by a licensed hauler to licensed hazardous waste treatment and disposal facilities, as appropriate (Southern 2000a, AFC p. 8.13-4).

OPERATION

The proposed facility will generate both nonhazardous and hazardous wastes under normal operating conditions. Non-hazardous waste will be recycled where practical and the remainder transported to a Class III (nonhazardous) landfill (Southern 2000a, AFC p. 8.13-4). Mirant estimates that about 90 tons of solid hazardous waste would be generated annually, with about 60 tons of this being recyclable and 30 tons requiring offsite disposal (Southern 2000a, AFC p. 8.13-5). AFC Table 8.13-3 shows the types, quantities, and management methods of hazardous wastes that would be generated during facility operation (SA p. 188-189).

IMPACT ON EXISTING WASTE DISPOSAL FACILITIES

AFC Table 8.13-1 lists disposal facilities that can be used for wastes generated by the Unit 8 Project. Even discounting the effects of recycling on the total amount of non-hazardous wastes destined for landfills, the amount of non-hazardous waste generated during project construction and operation are insignificant (less than one percent) relative to existing disposal capacity, and would not meaningfully impact the landfill's capacity or operating life.

CUMULATIVE IMPACTS

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, no significant cumulative hazardous and non-hazardous waste impacts would occur.

FINDING

Management of the wastes generated during construction and operation of the CCPP Unit 8 Project will not result in any significant adverse impacts with the adoption of the Conditions of Certification presented herein. There will be no significant impact upon any individual in the affected area, including any member of any minority population.

CONDITIONS OF CERTIFICATION

WASTE-1 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with whom the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-2 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CEC CPM, for review and comment, a waste management plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

1. A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and
2. 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 30 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation. The project owner shall submit any required revisions within 30 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-3 The project owner shall have a registered professional engineer or geologist with experience in remedial investigation and feasibility studies available for consultation during soil excavation and grading activities. The environmental professional shall be given full authority to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of construction, the project owner shall submit the qualifications and experience of the registered professional engineer or geologist to the CPM for approval.

WASTE-4 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the registered professional engineer or geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action. Depending on the nature and extent of contamination, the registered professional engineer or geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the registered professional

engineer or geologist, significant remediation may be required, the project owner shall contact representatives of the Contra Costa County Health Services Department and the Berkeley Regional Office of the California Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the registered professional engineer or geologist to the CPM within 5 days of their receipt.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
WASTE MANAGEMENT

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)	Establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. RCRA also establishes requirements applicable to hazardous waste transporters, including record keeping, compliance with the manifest system, and transportation only to permitted facilities.
Title 40, Code of Federal Regulations, part 260	These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.
STATE	
California Health and Safety Code section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended)	This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.
Title 22, California Code of Regulations, section 66262.10 et seq. (Generator Standards)	These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.
LOCAL	There are no additional local LORS to be considered.

LAND USE

LAND USE - GENERAL

The CCPP is situated on approximately 200 acres of land located about one-third of a mile west of State Route 160 and bounded by the San Joaquin River to the north and Wilbur Avenue to the south. The project site is located within unincorporated Contra Costa County, within the City of Antioch's Sphere of Influence. Land use in the immediate vicinity of the CCPP consists primarily of industrial facilities, remnant agricultural areas south of Wilbur Avenue, and small yacht clubs and marinas along the riverbank to the east (refer to **LAND USE Figure 2**). (SA pp. 198-199). The closest residential neighborhood to the existing CCPP site is located less than a quarter-mile to the southwest (about two-thirds of a mile from the proposed CCPP Unit 8 site). There is also a large single-family residential neighborhood located about three-quarters of a mile south of the proposed project site, south of East 18th Street, as well as some scattered residential areas nearly a mile southwest of the proposed project site, between State Route 4 and Neroly Road.

The Contra Costa County General Plan designates the proposed project site and surrounding lands for Heavy Industry (refer to **LAND USE Figure 3**) (SA p. 202). Consistent with this designation, the proposed project site, along with lands to the east and the west, is zoned H-I (Heavy Industrial) (refer to **LAND USE Figure 4**) (SA p. 203). Most of the nearby land south of Wilbur Ave is zoned for light industrial uses (L-I, Light Industry). The City of Antioch intends to maintain industrial land uses along the Wilbur Avenue corridor into the future (SA p. 200).

COMPLIANCE WITH LORS

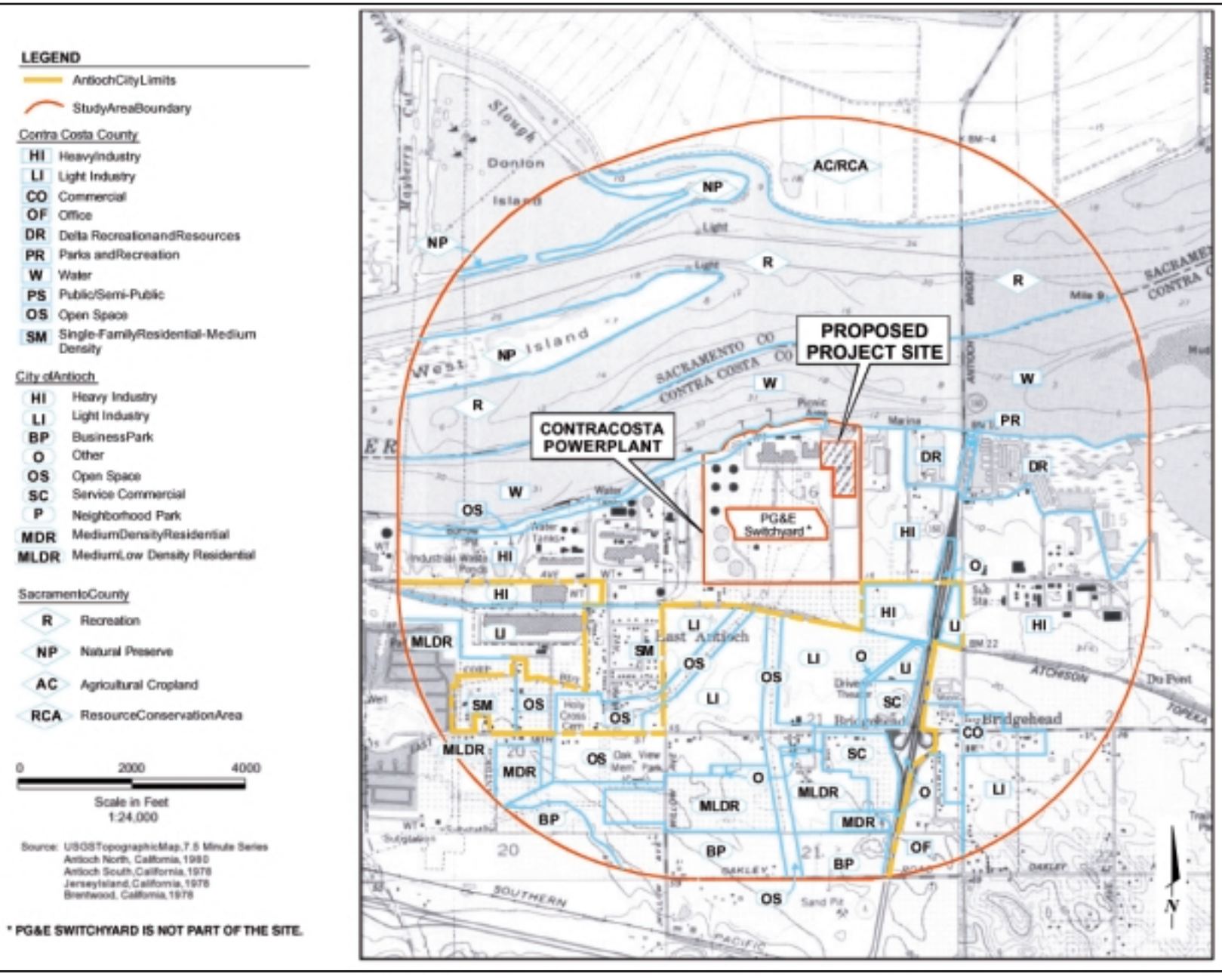
Public Resources Code section 25525 states that the Energy Commission shall not certify any facility when it finds "that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity." When determining if a project is in conformance with state, local or regional ordinances or regulations, Energy Commission staff typically meets and consults with the applicable agencies to determine conformity, when necessary. The land use laws, ordinances, regulations, standards (LORS) and policies applicable to the project have been analyzed in detail in the FSA (SA pp. 204-209) to determine the extent to which the CCPP Unit 8 is consistent or at variance with each requirement or standard. The results of this compliance analysis are summarized as follows

Contra Costa County General Plan Land Use Element, Section 3.2, Land Use Designations-Residential Density and Land Use intensity: With a total site area of approximately 200 acres, the employee density with the proposed project would be less than one employee per acre and, therefore, would comply with the specified standard of no more than 45 employees per acre.

Contra Costa County General Plan Land Use Element Section 3.8 Land Use Goals, Policies and Implementation Measures, Policies 3-2, 3-5 through 3-8, 3-11, 3-19, 3-43, 3-44, and Implementation Measure 3-b: Employment-generating commercial and industrial

LAND USE - Figure 3

Contra Costa Power Project - General Plan Designations in the Area Surrounding the Project Site

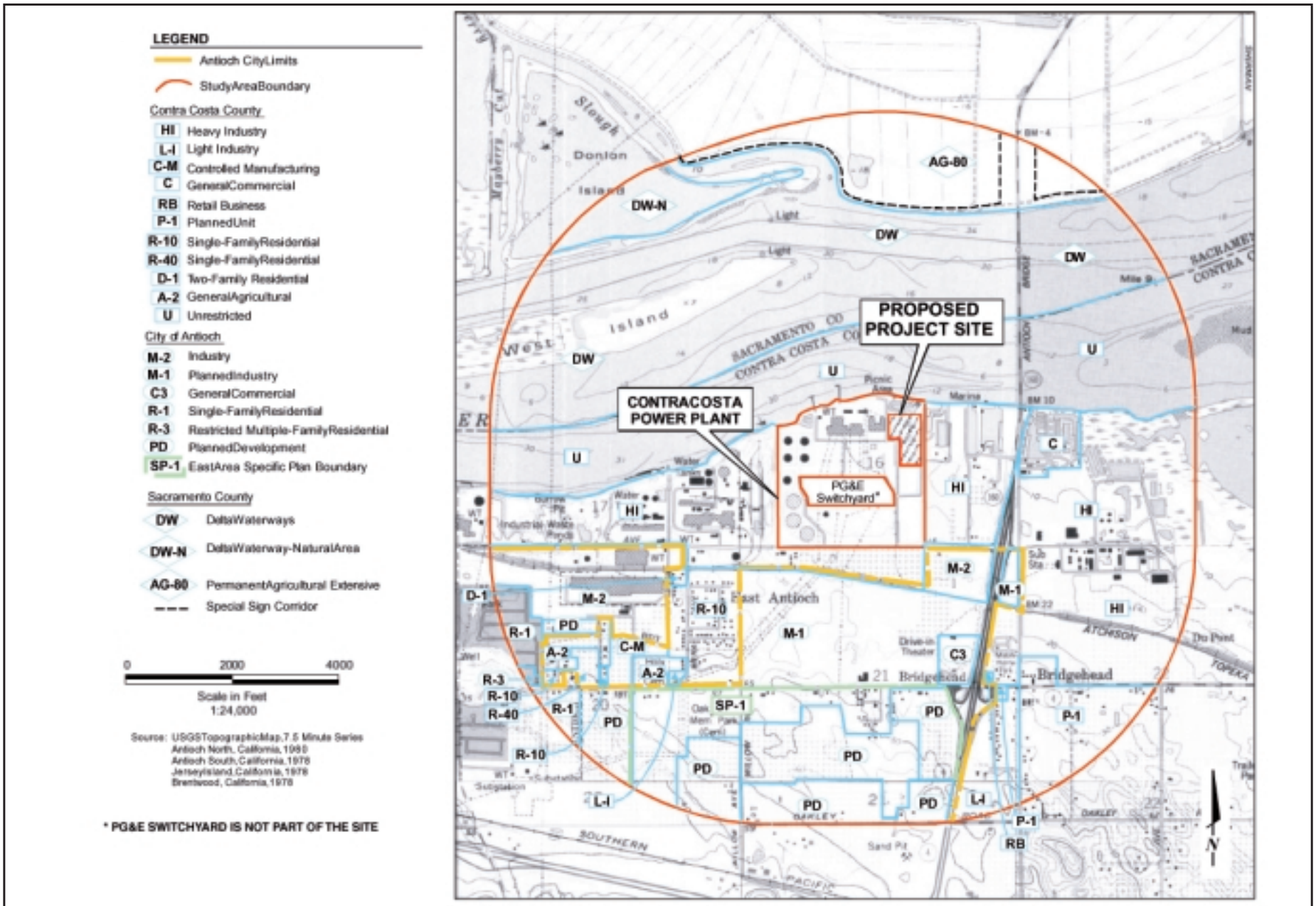


CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2000

SOURCE: Southern 2000f; AFC Replacement Figure 8.4-21

LAND USE - Figure 4

Contra Costa Power Project - Zoning in the Area Surrounding the Project Site



SOURCE: Southern 2000f; AFC Replacement Figure 8.4-1

uses are considered beneficial to the overall jobs/housing ratio and supportive of Countywide Policy 3-2. The project conforms to growth management standards and criteria and is consistent with Countywide Policies 3-5 through 3-8. The proposed project would not conflict with existing agricultural operations consistent with Countywide Policy 3-11. Consistent with Policy 3-19 (buffers), staff has proposed several conditions of certification that would ensure that a vegetative buffer screens views of CCPP Unit 8 from adjacent areas within a reasonable amount of time. The location of the project site is appropriate with regard to its proximity to existing transportation facilities and is consistent with Policy 3-43. With the implementation of the Conditions of Certification, the project also would be in basic compliance with Countywide Policy 3-44 regarding compatibility of uses. Since the revised project location is farther away from the Sportmen Yacht Club, the project's compliance with Countywide Policies 3-19 and 3-44 is strengthened. (Staff Supplemental Testimony). The proposed project site is not located on the edge of a mapped land use designation. The project site and adjacent areas are designated Heavy Industry by both the Contra Costa and Antioch general plans. Therefore, no specific evaluation of compatibility with adjacent uses is triggered by Implementation Measure 3-b.

Contra Costa County Zoning Ordinance, Chapters 82-16, 84-62, 84-63, and 88-6: Staff has proposed a condition of certification (**LAND-1**) requiring the project to provide sufficient parking in conformance with Section 82-18.018(16) regarding off-street parking. Because there are no lot size, building height, setback, or other specific development regulations for the H-I district (Chapter 84-62), there are no local development standards of this type applicable to the proposed project. In addition, since the issuance of a certificate by the Energy Commission is in lieu of any local permit (Pub. Resources Code, § 25500), a local land use permit for the storage and use of hazardous substances will not be necessary as ordinarily required by Chapter 84-63. Staff has proposed a condition of certification (**LAND-2**) to ensure that all signs and outdoor advertising structures comply with the requirements of Chapter 88-16.

City of Antioch General Plan: The General Plan indicates that more land is designated for industrial and employment-generating uses than demand projections indicate can be absorbed during the planning period, in accordance with a declared intent by the City to reserve land for future economic activities that would generate employment. Consistent with this goal, the Economic Development goals and policies presented in the Land Use Element of the General Plan promote industrial expansion and the preservation of local jobs. CCPP Unit 8 is appropriately located in an area designated for heavy industrial uses by the Antioch General Plan. An industrial land use policy directly relevant to the proposed project states that strict environmental performance standards (e.g., for smoke, noise, order, etc.) should be developed to ensure that industrial plants do not cause undue impacts on residential and commercial facilities in the immediate vicinity or community as a whole. Staff has determined that potential impacts related to smoke, noise, and odor (evaluated in the **AIR QUALITY** and **NOISE** sections of the FSA) can be effectively mitigated to less-than-significant levels, thereby providing compliance equivalent to strict performance standards cited in the policy presented above.

COMPATIBILITY WITH EXISTING AND PLANNED LAND USES

The CCPP Unit 8 is consistent with the proposed project site's land use designation and would not constitute a change in the planned development pattern of the area as established by the County and City general plans. The project is compatible with the industrial character of the area, which currently includes a variety of manufacturing, fabricating, batch plant, and storage uses. Staff has found that with the proposed conditions of certification operation of the CCPP Unit 8 would not cause significant, unmitigated, long-term, adverse noise, dust, public health hazard/nuisance, traffic, or visual impacts on nearby land uses. Please refer to the **NOISE**, **AIR QUALITY**, **PUBLIC HEALTH**, **TRAFFIC AND TRANSPORTATION**, and **VISUAL RESOURCES** sections for further information on impacts from the operation of CCPP Unit 8. In addition, since it would be located entirely within the boundaries of the existing Contra Costa Power Plant, the CCPP Unit 8 project would not disrupt or physically divide an established community, nor convert agricultural land to a non-agricultural use. Similarly, the CCPP Unit 8 project would not preclude or substantially restrict any planned uses in the vicinity.

CUMULATIVE IMPACTS

No other planned or recently approved projects have been identified in the vicinity of the CCPP Unit 8 site. Therefore, there is no potential for cumulative effects due to the construction of other new industrial or commercial projects in the area. In addition, the proposed project does not appear to make a significant contribution to regional impacts related to new development and growth, such as population inmigration, increased demand for public services, expansion of public infrastructure, or loss of open space.

FINDING

With the adoption of Conditions of Certification, the proposed project would comply with applicable LORS (laws, ordinances, regulations and standards) related to land use, and would be compatible with existing and planned land uses. In addition, the proposed CCPP Unit 8 project would not result in any unmitigated disproportionate land use impacts to a minority or low-income population.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall comply with the parking standards established by the Contra Costa County Zoning Ordinance (Title 8, Chapter 82-16).

Verification: At least 30 days prior to start of construction, the project owner shall submit written evidence to the Energy Commission Compliance Project Manager (CPM) that the project conforms to all applicable parking standards as established by the Contra Costa County zoning ordinance (Title 8, Chapter 82-16). The submittal to the CPM shall include evidence of review by the County.

LAND-2 The project owner shall ensure that any signs erected (either permanent or for construction only) comply with the outdoor advertising regulations established by the Contra Costa County zoning ordinance (Title 8, Chapter 88-6).

Verification: At least 30 days prior to start of construction, the project owner shall submit written evidence to the CPM that both permanent and temporary signs will conform to the Contra Costa County zoning ordinance (Title 8, Chapter 88-6). The submittal to the CPM shall include evidence of review by the County.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
LAND USE

APPLICABLE LAW	DESCRIPTION
FEDERAL	There are no applicable Federal land use LORs.
STATE	
Delta Protection Act of 1992	This act created the Delta Protection Commission with a mandate to develop a long-term resource management plan for the Delta Primary Zone (Public Resources Code § 29700 et seq.). The goals of the plan are to "protect, maintain, and, where possible, enhance and restore the overall quality of the delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities." All local general plans for areas within the Primary Zone are required to be consistent with the regional plan. The Secondary Zone consists of areas within the statutory Delta (as defined in Section 12220 of the California Water Code) but not part of the Primary Zone. Local general plans for land use within the Secondary Zone are not required to conform to the regional plan.
LOCAL	
Contra Costa County General Plan	The Contra Costa General Plan (1995 - 2010) was adopted in 1996. The purpose of the County General Plan is to express the broad goals and policies, and specific implementation measures, which will guide the County's decisions on future growth, development, and the conservation of resources through the year 2010. In addition to the seven mandatory elements prescribed by the State, the Contra Costa General Plan includes a Growth Management Element and Public Facilities/Service Element.
Revised Contra Costa Transportation Improvement and Growth Management Plan (Measure C 1988)	Measure C (1988) added one-half cent to the County sales tax to be used for funding transportation projects and it requires that the County and other jurisdictions adopt a Growth Management Element in accordance with the terms of the measure in order to receive local street maintenance and improvement funds. The Growth Management Elements mandated by Measure C must (1) establish traffic levels of service (LOS) standards keyed to types of land use, and (2) establish performance standards maintained through capital projects for fire, police, parks, sanitary facilities, water, and flood control. Contra Costa County's Growth Management Element is presented in Chapter 4 of the Contra Costa County General Plan.
Contra Costa County Zoning Ordinance	The Contra Costa County zoning ordinance (Title 8 of the Contra Costa County Code) establishes zoning districts and contains regulations governing the use of land and improvement of real property within zoning districts.
City of Antioch General Plan	The City of Antioch General Plan (1988 - 2000) consists of the seven mandatory elements and several optional elements, such as public infrastructure, growth management, social services, economic development, and community image. The required open space, conservation, and noise elements have been combined within a consolidated element entitled Resources Management.

TRAFFIC AND TRANSPORTATION

TRAFFIC AND TRANSPORTATION - GENERAL

The CCPP is located on Wilbur Avenue approximately one-half mile west of SR 160. Unit 8 is to be constructed wholly within the site of the existing CCPP (Southern 2000a). Descriptions of some of the critical roads and highways in the study area are provided in **TRAFFIC AND TRANSPORTATION** section of the FSA (SA pp. 217-222). **TRAFFIC AND TRANSPORTATION Figure 1** illustrates the major roads, potential access roads, and highways in the project area (SA p 219).

CONSTRUCTION

The combination of commuters, truck, and visitor traffic associated with the construction phase of the CCPP Unit 8 Project will increase the volume of traffic in the local area. However, the level of service will not change between existing and 'existing plus project' conditions on affected road segments with the addition of project construction traffic during the p.m. peak hour of a peak construction workday (Southern 2000p). Although an impact to roadway facilities is typically identified if a project results in a delay index of 2.5 or greater based on the East County Action Plan, construction of the proposed CCPP Unit 8 would create only temporary impacts (Korve 2000a). Traffic count data from Caltrans indicates that traffic volumes on affected state highways during off-peak hours are relatively low, and therefore truck and commute traffic associated with the construction of the CCPP to off-peak travel periods is not expected to cause significant, adverse impacts to the level of service of these highways.

Compliance with the provisions of the transportation permits required from Caltrans would be necessary to ensure that any potential safety impacts on roadways with significantly high accident rates are also minimized. Condition of Certification **TRANS-1** requires the project owner to obtain these permits.

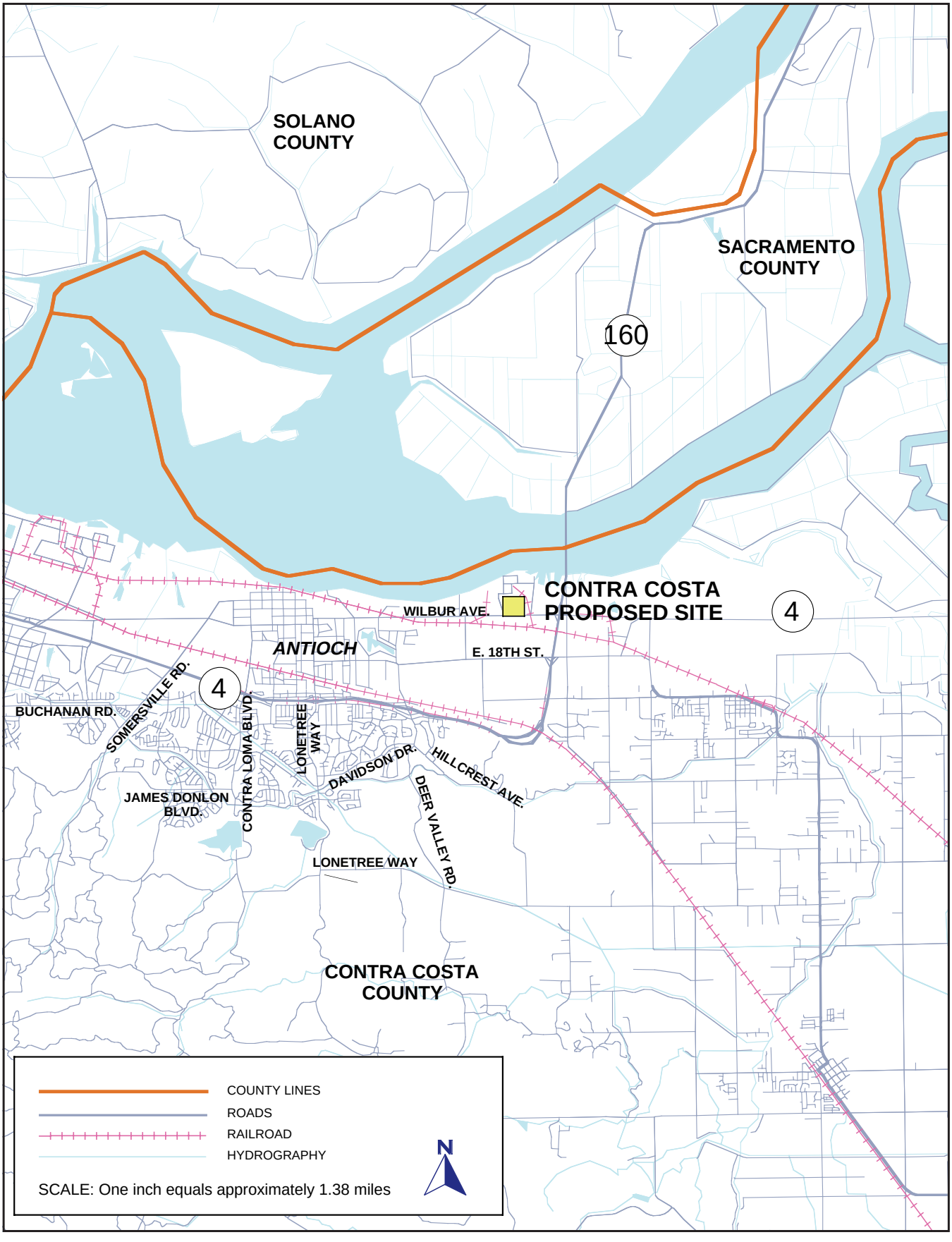
No significant traffic impacts related to the existing railway facilities are anticipated with the addition of the proposed project since all railroad crossings on Wilbur Avenue are located east of the existing CCPP access road. All CCPP Unit 8-generated traffic is expected to arrive via Wilbur Avenue from SR 160. Therefore, CCPP Unit 8 traffic would not conflict with any of the existing railroad crossings. Furthermore, none of the existing railroad spur lines that cross Wilbur Avenue appear to be utilized or operable.

In addition, since no additional construction for linear facilities is necessary for the CCPP Unit 8 Project, no traffic impacts to the local roadway or state highway system serving the project are identified with regards to the construction of linear facilities. (SA pp. 222-225)

OPERATION

The operation phase of the CCPP Unit 8 generating plant will require the addition of 10 full-time employees. Adequate parking will be available for these employees on site. The existing

TRAFFIC AND TRANSPORTATION - Figure 1
Contra Costa Energy Project - Local Transportation Setting



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, OCTOBER 2000
SOURCE: California Energy Commission Statewide Transmission Line & Power Plant maps/2000 & USGS 7.5 Minute Quadrangles

state highway and county roadway system will not be impacted by any increase in commute traffic associated with the operation of the CCPP Unit 8. Therefore, the commuter and visitor traffic associated with the operation phase of the project is not expected to cause any significant traffic impacts. The Contra Costa Transportation Authority (CCTA) does not require a traffic impact study for projects that do not generate more that 100 peak hour trips (CCTA 2000c). In addition, the existing state highway and county roadway system will not be significantly impacted by any increase in truck traffic associated with the operation of the CCPP Unit 8 project. Condition of Certification **TRANS-3** requires the project owner to comply with Federal and State requirements for transportation of hazardous materials. The operation of linear facilities that would serve both the existing CCPP and the proposed CCPP Unit 8 is not expected to have any impacts on area roadways except for short-term maintenance or unplanned difficulties.

Boaters utilizing the San Joaquin River have raised concerns about the visibility of a proposed Aquatic Filter Barrier (AFB) associated with the CCPP. According to the California Department of Boating and Waterways, the proposed AFB would represent a potential boating safety hazard. Therefore, it is recommended that the waterway area encompassed by the AFB be marked with an adequate number of buoys and other warning signs in accordance with Article 6, Waterway Marking System, Title 14 of the California Code of Regulations, Sections 7000-7007. In addition, to ensure the navigability of the San Joaquin River near the CCPP pursuant to Section 10 of the Federal River and Harbor Act, the installation of the AFB will require a Section 10 permit to be administered by the Army Corps of Engineers.

CUMULATIVE IMPACTS

The project area will likely continue to experience development, leading to increases in traffic volumes on the regional roadway system. The project's level of traffic generation will diminish between the construction and operation phases such that an increase in background traffic is not expected to lead to a significant cumulative impact. Mitigation to minimize any potential traffic impacts under cumulative conditions on the affected state highways can be accomplished through the implementation of transportation demand strategies that limit all commute and truck traffic related to the construction of the CCPP Unit 8 to off-peak hours as part of a construction traffic control and implementation plan (to be coordinated with Contra Costa County). Adoption of Condition of Certification **TRANS-6** ensures this compliance.

FINDING

With the adoption of Conditions of Certification, CCPP Unit 8 will comply with LORS and will have no significant adverse traffic and transportation impacts.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with California Department of Transportation (Caltrans) and Contra Costa County limitations on vehicle sizes and weights. In addition, the project owner or their contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for both rail and roadway use.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The project owner or their contractor shall comply with Caltrans and Contra Costa County limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any encroachment permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The project owner shall ensure that all federal and state regulations for the transport of hazardous materials are observed.

Verification: The project owner shall include in its Monthly Compliance Reports copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous materials.

TRANS-4 Following completion of project construction of the power plant and all related facilities, the project owner shall repair Wilbur Avenue to its pre-construction condition.

Protocol: Prior to start of site preparation or earth moving activities, the project owner shall photograph, videotape or digitally record images of Wilbur Avenue from SR 160 to the project access road. The project owner shall provide the CEC Compliance Project Manager (CPM), Contra Costa County and Caltrans (as necessary) with a copy of these images. Prior to start of site preparation or earth moving activities, the project owner shall also notify Caltrans about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction related activities associated with other projects.

Verification: At least 60 days after completion of project construction, the project owner shall meet with the CPM, Contra Costa County and Caltrans (as needed) to determine and receive approval for the actions necessary and schedule to complete the repair of identified sections of public roadways to original or as near original condition as possible. The project owner shall provide to the CPM a letter from Contra Costa County stating their satisfaction with the road improvements.

TRANS-5 During construction of the power plant and all related facilities, the project owner shall enforce a policy that all project-related parking occurs in designated parking areas.

Verification: At least 30 days prior to start of site preparation or earth moving activities, the project owner shall submit a parking and staging plan for all phases of project construction to Contra Costa County and the CPM for concurrent review and comment.

TRANS-6 The project owner shall develop a construction traffic control and transportation demand implementation program that limits construction-period truck and commute traffic to off-peak periods in coordination with Contra Costa County and Caltrans. Specifically, this plan shall include the following restrictions on construction traffic addressing the following issues for power plant construction:

- Provide sufficient pavement of the additional access road proposed along the east side of the proposed Unit 8 site, based on the Enhanced Site Plan (URS 2001) to provide adequate truck turning radii in order to help facilitate truck turning movements
- Establish construction work hours outside of the peak traffic periods (i.e., between 7:00 - 9:00 a.m. and 4:00 – 6:00 p.m.) when feasible to ensure that construction workforce traffic occurs during off-peak hours
- Schedule heavy vehicle equipment and building materials deliveries to occur outside of the peak traffic periods (i.e., between 7:00 - 9:00 a.m. and 4:00 – 6:00 p.m.) when feasible
- Maintain access to adjacent residential and commercial properties

Verification: At least 30 days prior to start of site preparation or earth moving activities, the project owner shall provide to Contra Costa County and Caltrans for review and comment, and to the CPM for review and approval, a copy of their construction traffic control plan and transportation demand implementation program.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
TRAFFIC AND TRANSPORTATION

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Title 49, Code of Federal Regulations, Sections 171-177	Governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
Title 49, Code of Federal Regulations, Sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations	Addresses safety considerations for the transport of goods, materials, and substances over public highways
STATE	
California Vehicle Code and the Streets and Highways Code	Contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and rights-of-way. In addition, the California Health and Safety Code addresses the transportation of hazardous materials (SA p. 216)
LOCAL	
Contra Costa Transportation Authority (CCTA), East County Action Plan	Serves as the principal transportation agency in the region. In November 1988, Contra Costa County voters approved Measure C, a one-half percent sales tax for transportation improvements and an innovative Growth Management Program (GMP). The CCTA was established to implement Measure C and its goals. A collection of *Implementation Documents* and supporting Technical Materials, adopted in 1990, include an approach and policy direction for establishing level of service (LOS) standards and Action Plans for Routes of Regional Significance developed cooperatively with local Contra Costa County communities and their respective Regional Transportation Planning Committees (RTPCs).

NOISE AND VIBRATION

NOISE AND VIBRATION - GENERAL

The primary noise sources anticipated from the proposed project include the steam turbine generator, combustion turbine generators, heat recovery steam generators, transformers, cooling tower, boiler feed pumps, and the circulating water pumps. Secondary noise sources are anticipated to include pumps, ventilation fans and compressors. The noise emitted by power plants during normal operation is generally broadband and steady state in nature. During construction of the project, pile driving has the potential to produce significant ground-borne vibration levels (SA p. 237).

CONSTRUCTION

Because construction activity and related traffic are scheduled during the daytime hours in compliance with City of Antioch Municipal Code requirements, potential construction impacts to receptors in the project area are considered to be less than significant (Southern 2000a, AFC page 8.5.2.2) (SA pp. 241-242).

In addition, because pile driving will produce a significantly higher noise level at the nearest residential receptors, Condition of Certification **NOISE-8** requires that pile driving be performed only during daytime hours in order to minimize annoyance to residents. The applicant has concluded that pile driving with an impact hammer would not cause structural damage to the Sportsmen Yacht Club Sausalito Ferry. However, Energy Commission staff notes that a full assessment of the potential impacts cannot be prepared until the detailed pile driving plan has been developed, and until a specific vibration analysis is prepared. For this reason, Conditions of Certification **NOISE-9** and **NOISE-10** require a specific vibration analysis and mitigation measures prior to and during pile driving activities (SA pp. 243-244).

Because the steam blows will produce extremely high noise levels at residential receptors, Condition of Certification **NOISE-4** requires that any high pressure steam blows be muffled with an appropriate silencer and be performed only during daytime hours on weekdays to minimize annoyance to residents. Regardless of which steam blow process the applicant selects, Condition of Certification **NOISE-5** requires a notification process to make neighbors aware of scheduled steam blows, and requires that the applicant distribute, or make available at no charge, hearing protection devices to residents within one-quarter mile of the project site. This should help ensure that the steam blow process is at least tolerable to nearby residents.

The Applicant recognizes applicable LORS that would protect construction workers from construction-related noise, and commits to complying with them (Southern 2000a, AFC page 8.5.2.1). Adoption of Condition of Certification **NOISE-3** will ensure that construction workers are, in fact, adequately protected (SA p. 245).

OPERATION

The project sound level impacts will be no higher than 51 dBA at any residentially zoned land use. The nearest residences, which are non-conforming land uses in an area zoned for heavy

industry, already experience existing sound levels that are well above the county guidelines. Non-conforming uses typically are subject to the noise standards of the zoning category in which they occur. Generally, a change in level of at least 5 dBA is required before any noticeable change in community response would be expected. The calculated increases in noise levels are less than 2 dBA in all cases for the proposed project. As a result, it is anticipated that the project would not cause any significant impacts to the sensitive noise receptors. Condition of Certification **NOISE-6** would ensure that no significant impacts would occur from this project (SA p. 246 and Supplemental Noise SA p. 1).

During its operating life, CCPP Unit 8 represents essentially a steady, continuous noise source day and night. Occasional short-term increases in noise levels would occur as steam relief valves open to vent pressure, or during startup or shutdown as the plant transitions to and from steady-state operation. At other times, such as when the plant is shut down for lack of dispatch or for maintenance, noise levels would decrease. Using the equipment specific sound level data provided by the applicant, the cumulative steady state sound level for the project was calculated to be 61 dBA at 400 feet. The modeled sound level at OML5 was determined to be 59 dBA, which is slightly below existing nighttime ambient noise conditions of 61dBA, and would cause a cumulative noise increase of 2 dBA. The modeled noise level at the 1958 Santa Fe Avenue residential location (OML3) was determined by Energy Commission staff to be 41 dBA, which is below monitored ambient noise conditions, and which would cause a cumulative noise increase of less than 2 dBA. **NOISE: Table 4** (Supplemental Noise SA p. 1) lists the predicted project noise levels.

During project design, it will be necessary for the applicant to carefully consider the noise produced by each source in its final location to ensure compliance with the proposed Conditions of Certification. No significant noise impacts are likely to occur due to the operation of the project with the adoption of Conditions of Certification. Specifically, Condition of Certification **NOISE-6** would ensure that the noise level at the most-affected sensitive noise receptor would not increase by more than 3 dBA L_{90} (Supplemental Noise SA pp. 4-5).

One possible source of annoyance would be strong tonal noises, which are individual sounds that, while not louder than permissible levels, stand out in sound quality. The applicant has stated that no strong tonal noises will be generated during the operation of the project. The applicant has also stated that mufflers will be installed on steam vents to mitigate the intermittent noise from pressure relief valves. To ensure that no strong tonal noises are present and that intermittent noises are mitigated, Condition of Certification **NOISE-6** requires the applicant to measure one-third octave band sound pressure levels during a typical power plant operational period, and requires the applicant to mitigate the noise from steam relief valves (SA p. 248 and Supplemental Noise SA p. 5)

The applicant recognizes the need to protect plant operating and maintenance personnel from noise hazards, and has committed to comply with applicable LORS (Southern 2000a, AFC page 8.5.2.1). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. The applicant would implement a comprehensive hearing conservation program.

Condition of Certification **NOISE-7** ensures that construction workers are adequately protected (SA p. 248).

CUMULATIVE IMPACTS

There are no other existing noise sources or planned projects that could contribute to cumulative noise impacts in the project study area identified in the AFC (Southern 2000a, AFC page 8.5.3 and Appendix H; 2000f) (SA p. 248).

FINDING

The CCPP Unit 8 will be built and operated to comply with all applicable noise laws, ordinances, regulations, and standards. In addition, with the adoption of Conditions of Certification, the CCPP Unit 8 is not expected to produce significant adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of project-related ground disturbing activities, the project owner shall notify all residents within one-half mile of the site, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: The project owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Construction Report following the start of project-related ground disturbing activities, a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

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

Protocol: The project owner or authorized agent shall:

1. Use the Noise Complaint Resolution Form (see **EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM** in the FSA, p.261), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;

2. Attempt to contact the person(s) making the noise complaint within 24 hours;

3. Conduct an investigation to determine the source of noise related to the complaint;

4. If the noise is project related, take all feasible measures to reduce the noise at its source; and

5. Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and, if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the Contra Costa County Community Development Department, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of project-related ground disturbing activities, the project owner shall submit a noise control program to the CPM for review. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of project-related ground disturbing activities, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 110 dBA measured at a distance of 100 feet. The project owner shall conduct steam blows only during the hours of 9 a.m. to 5 p.m. on weekdays, unless the CPM agrees to longer hours based on a demonstration by the project owner that off-site noise impacts will not cause annoyance. If a low-pressure continuous steam blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM, who shall review the proposal with the objective of ensuring that the resulting noise levels and impacts are consistent with the above noise standards and hours of operation. If the low-pressure process is approved by the CPM, the project owner shall implement it in accordance with the requirements of the CPM.

Verification: At least 15 days prior to the first high-pressure steam blow, the project owner shall submit to the CPM and the City of Antioch drawings or other information describing the temporary steam blow silencer and the noise levels expected, and a description of the steam blow schedule. At least 15 days prior to any low-pressure

continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5 At least 15 days prior to the first steam blow(s), the project owner shall notify all residents within one mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations. Additionally, at a minimum, the project owner will make available at no charge hearing protection devices (such as foam ear plugs) to all residents located within one-quarter mile of the project location during the period of high-pressure steam blow operations.

Verification: Within 5 days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification. Additionally, the project owner will provide a description of the hearing protection measures made available to residents located within one-quarter mile of the project location.

NOISE-6 Prior to initiating construction, the project owner shall conduct a 25-hour community noise survey at the closest noise sensitive receptor (applicant's OML5 location), and shall conduct short-term noise measurements during daytime, evening and nighttime hours at locations OML6 and OML7.

The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the project will not cause resultant noise levels to exceed the ambient background noise level (L_{90}) at residential receivers by more than 3 dBA.

Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct short-term survey noise measurements at OML5, OML6 and OML7. Based upon the survey noise measurements, the applicant shall conduct an additional 25-hour community noise survey at the site which experiences the highest project-related noise levels. The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.

If the results from the two noise surveys (pre-construction vs. operations) indicate that the background noise level (L_{90}) at the most affected receptor has increased by more than 3 dBA for the average nighttime (10:00 p.m. - 7:00 a.m.) L_{90} during the

25-hour period, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Verification: Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the Contra Costa County Community Development Department, to the City of Antioch, and 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 limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 Within 30 days after the facility is in full operation, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

NOISE-8 Heavy equipment operation and noisy construction work shall be restricted to the times of day delineated below:

Weekdays	7 a.m. to 6 p.m.
Weekdays[1]	8 a.m. to 5 p.m.
Weekends and Holidays	9 a.m. to 5 p.m.
Steam Blows	9 a.m. to 5 p.m.

[1] – For construction activities within 300 feet of the Sportsmen Yacht Club and San Joaquin Yacht Harbor residences

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE-9 Prior to initiating construction, the project owner will conduct a pile driving vibration analysis addressing compliance with a criterion peak particle velocity value of 0.2 in/sec at the nearest noise sensitive receptor, and of 0.1 in/sec at the Sausalito Ferry. The analysis shall be based upon a detailed engineering design of the piling system, including specification of specific pile and hammer types. If the results from the vibration analysis indicate that the peak vibration velocities at the

nearest receptor will exceed the criterion value, additional mitigation measures shall be implemented to reduce vibration to a level of compliance with this limit.

Verification: At least ten days prior to initiating pile driving activities, the project owner shall submit the vibration analysis to the Contra Costa County Community Development Department, and to the CPM. Included in the report shall be a description of any additional mitigation measures necessary to achieve compliance with the above listed vibration limits, and a schedule, subject to CPM approval, for implementing these measures.

NOISE-10 Upon commencement of pile driving, the project owner will conduct continuous vibration monitoring at the nearest noise sensitive receptor, and will continue the monitoring until the pile nearest the noise sensitive receptor is installed. If the results from the vibration measurements indicate at any time that the pile driving vibration at the nearest noise sensitive receptor has exceeded the peak particle velocity criterion values established in Condition of Certification **NOISE-9**, additional mitigation measures shall be implemented immediately to reduce vibration to a level of compliance with this limit.

Verification: If vibration measurements indicate at any time that the pile driving vibration at the nearest receptor has exceeded the peak particle velocity criterion values established in Condition of Certification **NOISE-9**, the operator shall notify the CPM immediately, and shall cease pile driving until a mitigation plan is developed and implemented. Within 30 days after completing the vibration measurements, the project owner shall submit a summary report of the measurements to the Contra Costa County Community Development Department, to the City of Antioch, and to the CPM. Included in the report will be a description of any additional mitigation measures which were implemented to achieve compliance with the above listed vibration limits, as well as the vibration measurement data demonstrating compliance.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
NOISE AND VIBRATION

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95)	Designed to protect workers against the effects of occupational noise exposure. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation. There are no federal laws governing off-site (community) noise.
Federal Transit Administration (FTA)	Establishes guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects.
STATE	
California Government Code section 65302(f)	Encourages each local government entity to perform noise studies and implement a noise element as part of their General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The State land use compatibility guidelines are listed in **NOISE: Table 1** (SA p.234)
California Environmental Quality Act (CEQA)	Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth characteristics that signify a potentially significant noise impact. The Energy Commission has interpreted the CEQA criteria so that noise produced by the permitted power-producing facility that causes an increase of more than 5 dBA in the background noise level (L_{90}) at a noise sensitive receiver during the quietest hours of the day is considered a significant effect.
Cal-OSHA's Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099)	Set employee noise exposure limits. These standards are equivalent to the federal OSHA standards (**see NOISE: Appendix A, Table A4**) (SA p. 268).
LOCAL	
Contra Costa County General Plan Noise Element	Contra Costa County has adopted the State of California land use compatibility guidelines (shown above in Table 1) in their general plan (Contra Costa County 1996). The noise levels considered generally acceptable and conditionally acceptable for single-family residences are 60 dB CNEL and 70 dB CNEL, respectively.
City of Antioch General Plan Noise Element	The City of Antioch has also adopted the State of California land use compatibility guidelines (shown in **NOISE: Table 1**) in its general plan noise element (Policy 1, City of Antioch 1988). The noise levels considered generally acceptable and conditionally acceptable for single-family residences are 60 dB Ldn/CNEL and 70 dB Ldn/CNEL, respectively.
City of Antioch Noise Ordinances	Two sections in the City of Antioch Code of Ordinances are applicable to noise produced by construction and operation of the project (City of Antioch

	2000). Ordinance sections 5-17.04 and 5-17.05 regulate heavy construction equipment noise and construction activity noise. These regulations limit heavy construction equipment operation and construction activity (SA pp. 236-237)

VISUAL RESOURCES

VISUAL RESOURCES - GENERAL

Key Observation Points (KOPs) were identified to represent sensitive viewer groups within each of the affected landscape units of the project setting. The most sensitive of these have been used as viewpoints for computer-generated simulations of the proposed project and for evaluation of project contrast in impact evaluation. The potential viewshed of the project was defined from computer-generated viewshed mapping supplied by the applicant and confirmed by field observation, and depicted in **VISUAL RESOURCES Figure 3** in the FSA, Project Viewshed and Landscape Types. Detailed descriptions of the KOPs are provided in the **VISUAL RESOURCES** section of the FSA on pages 273 through 279.

The character of the project's regional setting is evident in this mapping, which shows largely uninterrupted views of the project extending to background distances (five miles) to the north, west, and east. The long views afforded by the level Delta terrain are reinforced by the general absence of structures, orchards or other tall land cover within the viewshed to the north, east, and northwest. To the south, north-facing slopes of the Contra Costa Hills contain the viewshed.

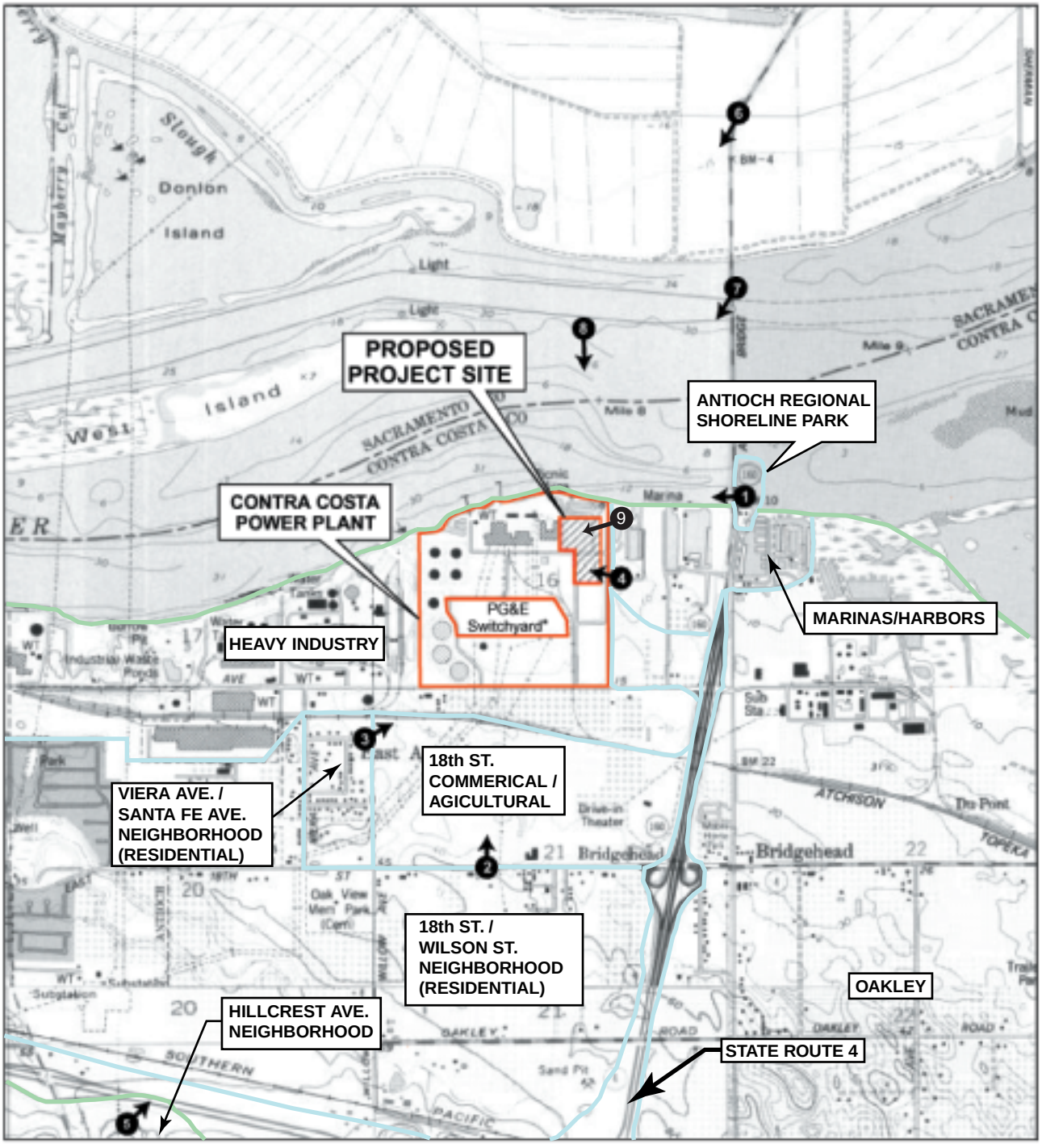
Existing prominent features of the project site include three generation structures – Units 1, 2, and 3 (123 feet tall) with six exhaust stacks (209 feet tall); Units 4 and 5 (138 feet tall) with two exhaust stacks (209 feet tall); and Units 6 & 7 (156 feet tall) with 1 large exhaust stack (459 feet tall). The Unit 6 & 7 stack is a prominent landmark within the project viewshed. Other features of visual importance include several steel lattice type transmission towers (120 feet tall); and seven storage tanks of varying diameters (all 48 feet tall). Of these structures, all but the storage tanks are visible from the majority of foreground and middle-ground viewpoints. Existing lighting at the CCPP facility is shielded from upward light casting and is of low-intensity, amber color. While this lighting highlights the facility at night, it is perceptibly less bright and intrusive than that of other nearby industrial facilities in the immediate vicinity, notably the brightly lit GWF power facility southeast of the site (SA pp. 272-273).

CONSTRUCTION

Construction impacts would be expected exclusively in the immediate project site vicinity, to neighbors at the adjoining marinas and residences viewing construction activities at foreground distances as represented by KOPs 4 and 9. Impacts of construction from KOP 4 and KOP 9 would include removal of substantial numbers of existing oak trees and other vegetation, storage and operation of unsightly equipment and material, and site grading. In addition, any nighttime construction could result in impacts on neighbors from construction lighting. All these impacts have the potential to be visually dominant, significant short-term impacts, except for tree removal, which is a significant long-term impact. With adoption of Condition of Certification **VIS- 5**, short-term impacts would be reduced to less than significant levels to all viewpoints. Construction impacts from this viewpoint would be significant, but limited to the period of construction (SA p. 294).

VISUAL RESOURCES - Figure 3

Contra Costa Power Plant Unit 8 Project - Landscape Sub-Types and Key Observation Points



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING & ENVIRONMENTAL PROTECTION DIVISION, MARCH 2001

SOURCE: AFC New Figure 8.11- 4

OPERATION

In general, the project would result in visually subordinate modifications to existing views due to the new cooling tower and HRSGs and associated stacks, which would be similar in character and color to the existing Units 6 and 7, and 2 and 3 plants and stacks, but smaller in scale. The proposed cooling tower would block a portion of views. Because of the highly industrial and low scenic quality of existing views in the direction of the project, impacts are generally considered less than significant. High quality panoramic views of scenic portions of the viewshed to the north, west, and east would not be affected by the project. At maturity (approximately 10 years' growth), recommended landscape screening would partially screen views of the new facilities. In addition, given the lower visual quality of this highly industrial segment of the River and Delta Viewpoints, and the fact that scenically intact portions of views from this KOP would not be affected, the impact of cooling tower plumes was considered to be less than significant. Due to their very low frequency, HRSG plumes were considered to have less-than-significant impacts (SA pp. 287-293).

The applicant's Landscape Screening Plan proposes mitigation for visually screening the plant to mitigate impacts associated with diminished visual quality. With the adoption of certain modifications described in Condition of Certification **VIS-4**, the Landscape Screening Plan in conjunction with proposed Condition of Certification **VIS-1**, which requires the use of colors to blend with the setting and the use of non-reflective finishes to reduce glare, would reduce visual impacts to a less-than-significant level. In addition, with the adoption of Condition of Certification **VIS-3** to ensure minimal lighting and prevention of off-site light trespass, potential night lighting impacts would be less than significant (SA pp. 287-293).

Cooling Tower Plumes

Staff and applicant disputed the significance of the visual impact of cooling tower plumes. Generally, a water vapor plume is caused from the operation of the power plant with wet cooling towers during certain meteorological conditions occurring in winter months. Whether the plume would be visible also depends on whether the observation is made during the daytime or nighttime hours. The height and width of the visible water vapor plume will also depend on meteorological conditions.

Based upon the results of the plume visibility model staff ran, views of maximum size plumes would be available from a relatively large geographic area, extending beyond the area from which the power plant structures are visible. Due to the fact that highly sensitive receptors of plume impacts are located at the near foreground distances (Sportsmen Yacht Club), even relatively small dimension plumes are potentially visually dominant. Thus, predicted plumes were considered to have high likelihood of resulting in significant visual impact if their predicted frequency exceeded the 10% daytime, no fog, seasonal criterion.

Staff recommended a condition of certification to limit the height and length of worst-case plumes. Staff suggested that there are alternatives to traditional wet cooling towers that would minimize the winter plumes.

Applicant countered that Staff's criteria for visual significance of the plume were too low at approximately 210 meters of height and length. Applicant also contended that the frequency and significance of visible plumes were less than asserted by staff since the modeling did not account for cloudy winter conditions, which would reduce the visual dominance of a plume.

Mirant proposes to design its conventional wet cooling tower with a design flow rate of 7,500 kg/sec. to maximize cooling of discharge water to the San Joaquin River while lessening the plume. Applicant stated that there were efficiency losses with more expensive alternate cooling technologies, which either lower plant output or increase fuel use and emissions to produce the same output.

The Commission acknowledges that on certain clear winter days a cooling tower plume from the project will be quite visible. Cooling tower flow rate affects potential magnitude of cooling tower plumes. Mirant's design flow rate of 7.500 kg/sec. will hold down the potential worst case plume. The Commission finds that, given the scale of natural and man-made (predominantly industrial) features nearby, a plume on the order of 300 meters is not a significant visual impact for other than the close foreground receptor. For the proximate viewer, frequency becomes pivotal in determining significance of impact. When historical data on cloudy days in the region are factored in, the relative infrequency of clear winter days (mostly mornings) when the worst case plume will arise makes this potential impact insignificant. Any reduction of the worst case plume which could result from the use of alternative cooling technology is not compensated in this instance by the increased capital cost and loss of efficiency of such other technologies.

CUMULATIVE IMPACTS

The proposed project would add to the existing heavy industrial character of the viewshed. Even with the landscaping screening required by Condition of Certification **VIS-4**, the project would contribute to cumulative visual impacts, because the screening would not mitigate impacts from elevated view locations. However, these impacts would not appreciably alter the existing industrial landscape character. The additional project contribution to the cumulative industrial landscape character of the viewshed is considered less than significant.

The proposed project’s vapor plumes would contribute to cumulative visual impacts, when larger plumes arise during daytime no-fog conditions lending to the industrial character of the area even at distances from which the industrial facilities themselves might not be visually prominent. Plumes that appear individually insignificant appear cumulatively significant due to the tendency for all plumes in the area to appear simultaneously due to climatic conditions. The relative contribution of new project plumes to cumulative vapor plume impacts is expected to vary according to operational and meteorological conditions. However, Unit 8 plumes are predicted to be of a generally comparable range of magnitude to existing individual contributing plumes. Given the very low frequency of predicted worst-case seasonal daytime cooling tower plumes, the proposed project’s contribution to the cumulative impact on landscape character and visual quality would not be significant.

FINDING

The project would cause a significant visual impact to views from outdoor portions of the Sausalito Ferry clubhouse of the Sportsmen Yacht Club, identified in the FSA discussion as KOP 9. Condition of Certification **VIS-4**, which requires landscaping, would reduce that impact to a less-than-significant level. Conditions of Certification would reduce other potential direct and cumulative impacts of the project to less-than-significant levels, and the project would conform with applicable LORS.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to the start of commercial operation, the project owner shall treat the project structures, buildings, and tanks visible to the public in a harmonizing color or colors with a low gloss finish to blend with the surroundings.

Surface design treatment shall be provided for the façades of the cooling tower to reduce visual monotony and apparent scale through architectural detailing to break up the façade surface. A color scheme using a combination of approved colors shall be employed, to increase visual variety and reduce the size of areas of uninterrupted uniform color or texture, without creating distracting levels of contrast. The project owner shall ensure that the treatment is properly maintained for the life of the project.

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

a. specification, and 11” x 17” color simulations at life-size scale, of the treatment proposed for use on project structures, including structures treated during manufacture;

b. a detailed schedule for completion of the treatment; and,

c. a procedure to ensure proper treatment maintenance 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, and shall not perform the final treatment on any structures on site until the project owner receives notification of approval of the treatment plan by the CPM.

Verification: No later than 30 days after certification, the project owner shall submit the treatment plan to the City of Antioch for review and comment and to the CPM for review and approval.

If the CPM notifies the project owner of any revisions that are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

Not less than thirty 30 days prior to the start of commercial operation, the project owner shall notify the CPM that all treated structures 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. The project owner shall not order the fencing until the project owner receives approval of the fencing specifications from the CPM.

Verification: At least 30 days prior to ordering the non-reflective fencing, the project owner shall submit the fencing specifications to the City of Antioch for review and comment, and to the CPM for review and approval.

If the CPM notifies the project owner that specification revisions are needed, the project owner shall prepare and submit to the CPM a revised submittal within 30 days of receiving that notification.

The project owner shall notify the CPM within seven (7) days after completing installation that the fencing is ready for inspection.

VIS-3 Prior to completion of project construction, to minimize lighting impacts to neighbors and offset the contribution of the Contra Costa Unit 8 project to cumulative lighting impacts consistent with operational and safety requirements, the project owner shall have the lighting at the Contra Costa Unit 6 and 7 power plant modified such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized.

Protocol: The project owner shall develop and submit a lighting modification plan for the project to the City of Antioch for review and comment and to the CPM for review and approval. The lighting plan shall include the following, consistent with operational and safety requirements:

a. All exterior night lighting shall be of minimum necessary brightness consistent with operational safety.

b. Exterior light fixtures shall be hooded, with lights directed downward or toward the area to be illuminated, and backscatter to the nighttime sky is minimized. The luminescence or light source shall be shielded to prevent light trespass outside the project boundary;

c. High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance shall be provided with switches or motion detectors to light the area only when occupied. Any lights that must be on shall be of minimum feasible brightness, and directed away from the direction of neighbors.

d. A lighting complaint resolution form (following the general format of that in Attachment 1) will be used by plant operations, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

Lighting modifications shall not be made before the plan is approved.

Verification: No later than 60 days after the start of project construction the project owner shall provide the lighting modification plan to the City of Antioch for review and comment and to the CPM for review and approval.

If the CPM notifies the project owner that plan revisions are needed, within 30 days of receiving that notification the project owner shall submit a revised plan to the City of Antioch for review and comment and to the CPM for review and approval.

Within 180 days after the start of project construction, the project owner shall notify the CPM that exterior lighting modifications to Units 6 and 7 have been completed and that the lighting is ready for inspection.

VIS-4 At the earliest feasible time during facility construction, the project owner shall install permanent aesthetic screening on-site along the south, east, and north boundaries of the power plant site that will screen views of the facility from neighbors and the public to the maximum feasible extent, as follows:

a. Landscape screening shall consist of redwoods Eucalyptus globulus 'Compacta' or other evergreen tree species that will achieve rapid and healthy growth, not produce a level of leaf debris problematic to harbor management, and provide the tallest growth possible, achieving an uninterrupted visual screen of approximately 50’ in height above existing grade at maturity in the vicinity of the Sportmen Yacht Club. Optimal screening in a reasonably short time frame may be achieved either by selection of rapidly growing species, or a larger sized plant material at time of installation, or both. However, the selected plant material shall be no less than 15 gallon at the time of planting.

b. In addition to tree planting, the planting area along the eastern site boundary shall be seeded with attractive shrubs and groundcover.

c. The selected tree species shall be chosen in consultation with the San_Joaquin Yacht Harbor, the Sportsmen Yacht Club, the City of Antioch, and the CPM.

d. Trees shall be irrigated until a height of 25’ is achieved.

e. Other plants that are native to the local region such as oaks may also be used but only in a way that will not interfere with complete, uninterrupted screening.

f. The planting of screening trees shall be initiated as soon as practical during facility construction to begin tree establishment at the earliest feasible time.

g. At a minimum, the project owner shall conduct monthly tree and landscape maintenance to remove tree debris build-up and obstruction of the access road, for the life of the project.

h. If requested by resident caretakers at San Joaquin Yacht Harbor, off-site tree planting shall be provided to screen views of the proposed cooling tower from these residences. Such screening shall consist of plantings of sufficient size to ensure substantial screening within a period of five (5) years.

Protocol: The project owner shall submit an aesthetic screening plan to the Sportsmen Yacht Club, San Joaquin Yacht Harbor, and the City of Antioch, for review and comment, and to the CPM for review and approval. The plan shall include, but not be limited to:

1. A detailed landscape, grading, and irrigation plan, at a reasonable scale, which includes a list of proposed tree and shrub species and installation sizes, and a discussion of the suitability of the plants for the site conditions and mitigation objectives. The plan shall explain how the screening conditions called for above shall be met, including evidence provided by a qualified professional arborist that the growth requirements specified above shall be met by the proposed plan.

2. Elevation views of the aesthetic screening projected for five (5) years and ten (10) years from the time of startup of operation of the facility that show the extent of screening that the landscaping is expected to achieve.

3. Maintenance procedures, including any needed irrigation and a plan for routine monthly debris removal; and

4. A procedure for replacing unsuccessful plantings.

The landscaping and any other plan features shall not be installed before the plan is approved.

Verification: No later than 90 days after certification, the project owner shall submit the proposed aesthetic screening plan to the Sportsmen Yacht Club, San Joaquin Yacht Harbor, and the City of Antioch, for review and comment, and to the CPM for review and approval. The project owner shall submit any required revisions within 30 days of notification by the CPM. The project owner shall complete installation of the screening at the earliest feasible opportunity, but not later than 180 days after certification. The project owner shall notify the

CPM within seven days after implementing the approved plan that the aesthetic screening installation is ready for inspection. In the Annual Compliance Report, the project owner shall verify that the maintenance has been performed.

VIS-5 Before site mobilization_or use of construction laydown areas for the power plant, whichever occurs first, the project owner shall install approved, visually opaque aesthetic screening along the perimeter of all areas that would be open to public view, particularly but not limited to the perimeter on the eastern site boundary. The aesthetic screening shall be of a minimum of 12' in height to substantially screen construction materials, equipment and grading activities from the view of neighbors and the public at ground level.

Screening shall be high enough to obscure views of all direct lighting from the site, as seen from nearby roadways and neighbors to the east. Nighttime lighting for construction and laydown areas shall be strictly controlled and shielded to prevent any direct light trespass outside the site boundaries, consistent with operational safety considerations.

Protocol: The project owner shall submit to the CPM for review and approval, and to the City of Antioch and Contra Costa County for review and comment, a plan describing proposed aesthetic screening. The plan shall include, but not be limited to:

a. A detailed plan, at a reasonable scale, that identifies the type, character, colors, and other detailed information for the proposed screening;

b. Elevation views of the aesthetic screening, showing how the objectives of the screening will be accomplished; and

c. Any maintenance procedures.

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

The aesthetic screening and any other plan features shall not be installed before the plans are approved. The project owner shall notify the CPM, the City of Antioch, and Contra Costa County when the plan has been implemented and is ready for inspection.

Verification: At least 30 days prior to the start of site mobilization or use of the construction laydown area, whichever occurs first, the project owner shall submit the proposed aesthetic screening plan to the CPM for review and approval and to the City of Antioch and Contra Costa County for review and comment. The project owner shall submit any required revisions within 30 days of notification by the CPM. The project owner shall notify the CPM within seven (7) days after implementing the proposed plan that the aesthetic screening installation is ready for inspection.

VIS-6: The project owner shall design the cooling tower with a flow rate of no less than 7,500 kg/sec.

Verification: Thirty (30) days prior to cooling tower construction, the project owner shall submit final cooling tower design specifications to the CPM for review and approval.

VIS-7: The project owner shall mitigate potential driving hazards on local roads due to ground-level cooling tower plumes from the project.

Verification: Ninety (90) days prior to commercial operation, the project owner shall submit to the CPM for review and approval a plan to mitigate driving hazards on adjacent roads (e.g., Wilbur Avenue) due to ground-level plumes from the project.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
VISUAL RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	There are no applicable Federal visual resources LORs
STATE	
California State Department of Transportation (Caltrans) Scenic Highway Program	Caltrans identifies a state system of eligible and designated scenic highways. SR 160 is a designated State Scenic Highway, and SR 4 east of the Antioch Bridge is eligible for designation as a State Scenic Highway. Scenic corridor controls applied to SR 160 by Sacramento County (the responsible agency) are limited to a sign ordinance (Southern, 2000b, 8.11-16). The identification of road corridors as either eligible or designated scenic highways is a strong indication of the scenic value of that corridor's viewshed and an indicator of high visual sensitivity in the assessment of potential visual impacts (SA p. 272)
LOCAL	
City of Antioch General Plan, Community Image Goals and Policies	The overall image goal of the City is to "preserve and enhance aesthetic and cultural elements that contribute to the City's image of small town neighborhoods positioned at the gateway to the Delta."
Contra Costa County General Plan, Land Use Element, Policy 3-19	Requires buffers to be provided between new industrial developments and residential areas by establishing setbacks, and park-like landscaping or other appropriate mechanisms
Contra Costa County General Plan, Open Space Element	Seeks to improve the appearance of the County by eliminating negative features such as non-conforming signs and overhead utility lines, and by encouraging aesthetically designed facilities with adequate setbacks and landscaping.

CULTURAL RESOURCES

CULTURAL RESOURCES - GENERAL

Because project-related site development and construction would entail subsurface disturbance of the ground, the proposed project has the potential to adversely affect previously unknown cultural resources. Twelve archaeological sites, features, objects, buildings, or structures are known to be located in the vicinity of the proposed project. These include historic-era buildings and structures. This indicates a moderate to high potential for previously unknown historic and prehistoric resources to be encountered and affected during project construction.

The record search originally indicated that Marsh Landing was east of the CCPP. However, additional research of historic documents indicates that Marsh Landing is within the CCPP property. Although the landing and associated buildings appear to be west and north of the construction area, they are within the project's area of potential effect (APE). Archeological deposits associated with the landing and other historic buildings could therefore be encountered during project construction.

The older portions of the power facility are about fifty years old. These buildings were considered in the PG&E EIR. The passage of time and changes in the CEQA require that the older portions of the power facility be evaluated against the California Register and National Register criteria to see if the buildings could be significant. The applicant provided an evaluation of the Contra Costa Power Plant (Units 1-5) and found it to be eligible for listing in the National Register of Historic Places under Criterion A at the "state" level of significance for its association with the postwar expansion of California's economy.

The link between the broad general development in California after World War II and the Contra Costa Power Plant is weak. The integrity of the facility is very high, and if a clearer link could be established the property would meet the requirements for eligibility for the National Register of Historic Places. Since the eligibility of the Contra Costa Power Plant (Units 1-5) is still in question, Contra Costa Power Plant (Units 1-5) will be considered as eligible for the purposes of this analysis (SA p. 323).

SAUSALITO FERRYBOAT

Adjacent to the proposed power plant site is the Sportsmen Yacht Club. The clubhouse is the ferryboat *Sausalito*. The *Sausalito* was built in 1894 as a double end steam powered side wheel passenger and railcar ferry. The ferry was originally designed to carry passengers and narrow gage railcars of the North Pacific Railroad. It transported people from Sausalito to San Francisco during the day, and railcars by night. In 1939, the *Sausalito* was moored at its present location at the Sportsmen Yacht Club (Hammer 1994) (SA p. 324).

Under the California Register criteria, the *Sausalito* could be significant, because ferryboats of its type and era, 1840s until 1937 when both the San Francisco Oakland Bay Bridge and the Golden Gate Bridge were open, were important in providing the transportation link between

San Francisco and other points around the bay. In addition, the Sausalito is representative of a wood hull, double end, side-wheel ferry powered by a vertical beam engine. Since the *Sausalito* is the last ferry of this type that has not been refitted, it could still meet the eligibility requirements for the California Register. Although the *Sausalito* has lost some of its integrity, the fact that it is the most complete original (not seriously refitted) ferry of its type could be sufficient to make it eligible for the California Register (SA pp. 325-326).

The rarity of this type of vessel suggests that the loss in integrity is not sufficient to clearly state that the vessel would not meet the minimum requirements to represent a wooden hull, double end, steam powered side wheel ferry for passenger and rail car transport. There is still insufficient information to clearly defend a statement of significance for the eligibility of the Sausalito for the California Register. Consequently, the Sausalito will be considered eligible for the purposes of this analysis (SA p. 329).

POWER PLANT SITE AND LAYDOWN AREA

Although development has previously occurred or currently exists on much of the land where new project related facilities would be built, the new facilities may cause ground disturbance to areas (and cultural resources) that have not been previously disturbed. Archeological deposits associated with Marsh Landing and other nearby historic buildings could exist within the project APE, but are currently inaccessible. There is a potential for impacts to these cultural resources. The new project related facilities will alter the immediate surroundings of historic Contra Costa Power Plant (Units 1-5) and the *Sausalito*. Therefore, the new facilities have the potential to cause impacts to cultural resources. The applicant indicates that the surroundings of the historic Contra Costa Power Plant (Units 1-5) have already been altered to the east of the historic plant by the construction of Units 6, and 7. The construction of Unit 8 and the accompanying changes to the switchyard would alter the immediate surroundings of the historic Contra Costa Power Plant to a small degree. However, the effect would not represent a substantial adverse change and would not be a significant effect (SA pp. 329-330).

The immediate surroundings of the *Sausalito* would also be altered, however the *Sausalito* is not in its original setting. The area to the west of the ferry, where the new power plant is to be built, is already an industrial site with highly visible industrial elements (Figure 4). The construction of the new power plant will alter the setting of the *Sausalito* to a small degree. However, the effect would not represent a substantial adverse change and would not be a significant effect (SA p. 330).

CUMULATIVE IMPACTS

Forty percent of the growth in eastern Contra Costa County is expected to occur in Antioch (Southern 2000f, p. 8.4-3). Given the extensive modern development throughout this region, any cultural resource materials or undisturbed sites found in the project area can provide valuable information on environmental conditions and human adaptations to earlier, environmental conditions. Proposed developments reaching wider and deeper into the coast range and river delta areas can accelerate the potential for loss of significant cultural resource information. The level of cumulative impact will rise as increasing development opens more undisturbed areas and eventually exposes highly sensitive cultural resource sites. If mitigation

measures such as avoidance, recordation, or data recovery are conducted for all of the project components, the potential cumulative impacts will be mitigated below a level of significance (SA p. 330).

FINDING

The proposed project has the potential to adversely effect cultural resources. With adoption of Conditions of Certification presented herein, the project will comply with applicable laws, ordinances, regulations, and standards; and no significant adverse impacts to cultural resources will occur.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of project related vegetation clearance, earth disturbing activities, or project site preparation, the project owner shall provide the California Energy Commission (Commission) Compliance Project Manager (CPM) with the name and statement of qualifications for its cultural resources specialist (CRS), and an alternate CRS, if an alternate is proposed, who will be responsible for implementation of all cultural resources Conditions of Certification.

Protocol: The statement of qualifications for the CRS and alternate shall include all information needed to demonstrate that the specialist meets the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published by the State Office of Historic Preservation (1983). The minimum qualifications include the following:

1. a graduate degree in anthropology, archaeology, California history, cultural resource management, or a comparable field;

2. at least three years of archaeological resource mitigation and field experience in California; and

3. at least one year's experience in each of the following areas:

    a. leading archaeological resource field surveys;

    b. leading site and artifact mapping, recording, and recovery operations;

    c. marshalling and use of equipment necessary for cultural resource recovery and testing;

    d. preparing recovered materials for analysis and identification;

    e. determining the need for appropriate sampling and/or testing in the field and in the lab;

    f. directing the analyses of mapped and recovered artifacts;

g. completing the identification and inventory of recovered cultural resource materials; and

h. preparing appropriate reports to be filed with the receiving curation repository, the State Historic Preservation Office, all appropriate regional archaeological information center(s).

The statement of qualifications for the designated cultural resources specialist shall include:

1. a list of specific projects the specialist has previously worked on;

2. the role and responsibilities of the specialist for each project listed; and

3. the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

Verification: At least thirty (30) days prior to the start of project related vegetation clearance, earth disturbing activities or project site preparation, the project owner shall submit the name and statement of qualifications of its CRS and alternate CRS to the CPM for review and approval.

At least ten (10) days but no more than thirty (30) days prior to the start of construction, the project owner shall confirm in writing to the CPM that the approved CRS will be available at the start of construction and is prepared to implement the cultural resources Conditions of Certification.

At least ten (10) days prior to the termination or release of a designated CRS, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new CRS.

CUL-2 Prior to the start of project related vegetation clearance, earth disturbing activities, or project site preparation, the project owner shall provide the designated cultural resources specialist and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps provided will include the USGS Antioch North 7.5 minute topographic quadrangle map and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. In addition, the project owner shall provide a set of these maps to the CPM at the same time that they are provided to the specialist. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the CRS and the CPM within five days. Maps shall show the location of all areas where surface disturbance may be associated with project related access roads, and any other project components.

Verification: At least thirty (30) days prior to the start of project related vegetation clearance, earth disturbing activities, or project site preparation, the project owner shall provide the CRS and the CPM with maps and drawings. Copies of maps and drawings

reflecting changes to the footprint of the power plant and /or project components shall be submitted to the CRS and CPM.

CUL-3 Prior to the start of project related vegetation clearance, earth disturbing activities, or project site preparation, the CRS shall prepare, and the project owner shall submit to the CPM for review and approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to sensitive cultural resources.

Protocol: The CRMMP shall include, but not be limited to, the following elements and measures:

a. A proposed research design that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the post-construction analysis of recovered data and materials.

b. A discussion of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the pre-construction, construction, and post-construction analysis phases of the project.

c. Identification of the person(s) expected to perform each of the tasks and description of the mitigation team organizational structure and the inter-relationship of team roles and responsibilities. Specification of the qualifications of any professional team members.

d. A discussion of the need for Native American observers or monitors, the procedures to be used to select them, the areas or post-mile sections where they will be needed, and their role and responsibilities.

e. A discussion of measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

f. discussion of where monitoring of project construction activities is deemed necessary by the designated cultural resources specialist. The specialist will determine the size or extent of the areas where monitoring is to occur and will establish the percentage of the time that the monitor(s) will be present. The areas to be monitored shall include the power plant site and the areas where excavation will be required.

g. discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and all significant or diagnostic resources will be collected for analysis and eventual curation into a retrievable

storage collection in a public repository or museum that meets the California State Historic Resources Commission Guidelines on Curation Facilities of cultural resources.

h. discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.

i. Identification of the public institution that has agreed to receive any data and cultural resources recovered during project-related monitoring and mitigation work. Discussion of any requirements, specifications, or funding needed for the materials to be delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least thirty (30) days prior to the start of any project related vegetation clearance, earth disturbing activities or project site preparation, the project owner shall provide the CRMMP, prepared by the CRS, to the CPM for review and approval.

CUL-4 Prior to the start of project related vegetation clearance, earth disturbing activities or project site preparation, the CRS shall prepare an employee training program. The project owner shall submit the cultural resources training program to the CPM for review and approval.

Protocol: The training plan and all program components will be submitted to the CPM. The drafts of the training plan and the program components will be reviewed and approved. The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall include a lecture or video that will address the following topics: (1) applicable state and federal laws pertaining to cultural resources; (2) cultural materials that, upon discovery, will require notification of the construction supervisor, cultural resources monitor, and./or CRS; and (3) authority of the CRS, alternate CRS, or Cultural Resources Monitor(s) to halt or redirect construction activities that have the potential to affect cultural resources. The training program shall also include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during project activities. The training program shall include the statement that the CRS, alternate CRS or cultural resources monitor has the authority to halt construction in the event of an unanticipated discovery. The employees shall be given a small durable Environmental Awareness Training Manual that includes all of the legal and procedural information necessary to fulfill the Conditions of Certification and contact names of the CRS and alternate CRS.

A form shall be developed as part of the cultural resources awareness program for the workers to sign that certifies (1) their completion of the environmental

awareness training program, (2) their understanding of their responsibilities under the program, and (3) their comprehension of potential legal penalties that could be sought against them individually should they violate applicable laws.

The training program shall be presented by the CRS or qualified individual(s) approved by the CPM and may be combined with other training programs prepared for biological resources, paleontological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least thirty (30) days prior to the start of project related vegetation clearance, earth disturbing activities, or project site preparation, the project owner shall submit to the CPM for review and approval, the proposed employee training plan and its components (e.g. the script of the proposed video if one is proposed). The project owner shall provide the name and resume of the individual(s) performing the training.

CUL-5 Prior to the start of project-related vegetation clearance, earth disturbing activities, or project site preparation and throughout the project construction period as needed for all new employees, the project owner shall ensure that the designated cultural resources trainer(s) provide(s) the CPM-approved cultural resources training to all project managers, construction supervisors, and workers. The project owner shall ensure that the designated trainer provides the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during construction.

Training at the project site may be discontinued after all foundations at the site are completed and the CRS has inspected the site and determined that no cultural resources will be impacted. Training shall continue for project personnel working in the vicinity of other project components that will disturb native soils.

Verification: In each Monthly Compliance Report after the start of construction, the project owner shall provide the CPM with documentation that the designated cultural resources trainer(s) has/have provided to all project managers, construction supervisors, and workers the CPM-approved cultural resources training and the set of reporting and work curtailment procedures.

After installation of all foundations at the project site, if the project owner wishes to discontinue training at the project site, the project owner shall provide a letter to the CPM indicating that the CRS has inspected the project site and has determined that no cultural resources will be impacted by completion of the project.

CUL-6 The CRS, alternate CRS or the Cultural Resources Monitor(s) shall have the authority to halt or redirect construction if previously unknown cultural resource sites or materials are encountered or if known resources may be impacted in a previously unanticipated manner.

If such resources are found, the halting or redirection of construction shall remain in effect until:

a. the specialist has notified the CPM and the project owner of the find and the work stoppage;

b. the specialist, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and

c. any necessary data recovery and mitigation has been completed.

If data recovery or other mitigation measures are required, the designated cultural resources specialist and team members shall monitor construction activities and implement data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: Thirty (30) days prior to the start of project related vegetation clearance, earth disturbing activities, or project site preparation, the project owner shall provide the CPM with a letter confirming that the CRS, alternate CRS and Cultural Resources Monitor(s) have the authority to halt construction activities in the vicinity of a cultural resource find.

For any cultural resource encountered, the project owner shall notify the CPM within 24 hours after the find. The specialist, the project owner, and the CPM shall confer to determine what, if any, data recovery or other mitigation is needed.

CUL-7 Throughout the project site preparation and construction period, the project owner shall provide the CRS and the CPM with a current schedule of anticipated monthly project activity (presented on a week-by-week basis) and a map indicating the area(s) where construction activities will occur. The CRS shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s). The CRS may informally discuss the cultural resources monitoring and mitigation activities with Commission technical staff.

Verification: The project owner shall provide the CRS and the CPM with a week-by-week schedule of the upcoming construction activities, one month in advance, as well as maps showing where the construction activity is scheduled to take place. These advance schedules are to be provided to the CPM with the Monthly Compliance Report.

CUL-8 The CRS, alternate CRS or their delegated Cultural Resources Monitor(s) shall be present at times the specialist deems appropriate to monitor construction-related ground disturbance, including grading, excavation, trenching, and/or augering in the

vicinity of previously recorded archaeological sites, in areas where significant cultural resources have been identified during project construction, and at any other locations specified in the approved monitoring and mitigation plan.

Protocol: If the CRS determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the CRS shall notify the project owner and the CPM of the changes.

Verification: Throughout the project construction period the project owner shall include in the Monthly Compliance Reports to the CPM copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring.

CUL-9 Throughout the pre-construction reconnaissance surveys and the construction monitoring and mitigation phases of the project, the CRS shall keep a daily log of any resource finds and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The daily logs shall indicate, where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found.

The CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities.

The CRS may informally discuss the cultural resources monitoring and mitigation activities with Commission technical staff.

Verification: Throughout the project pre-construction and construction period, the project owner shall ensure that the daily log is available for periodic audit by the CPM. The weekly summary reports shall be included in the Monthly Compliance Report.

CUL-10 The project owner shall ensure that the CRS performs the recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate research specialists which will ensure the necessary recovery, preparation for analysis, and analysis of cultural resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for the life of the project and the files shall be kept available for periodic audit by the CPM. Information as to the specific location of sensitive cultural resource sites shall be kept confidential and accessible only to qualified cultural resources specialists.

CUL-11 Following completion of any data recovery and site mitigation work, the project owner shall ensure that the CRS prepares a proposed scope of work for the Cultural Resources Report (CRR). The project owner shall submit the proposed scope of work to the CPM for review and approval.

Protocol: The proposed scope of work shall include (but not be limited to):

1. discussion of any analysis to be conducted on recovered cultural resource materials;

2. discussion of possible results and findings,

3. proposed research questions which may be answered or raised by analysis of the data recovered from the project; and

4. an estimate of the time needed to complete the analysis of recovered cultural resource materials and prepare the CRR.

Verification: The project owner shall ensure that the CRS prepares the proposed scope of work within ninety (90) days following completion of the data recovery and site mitigation work. Within seven (7) days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and approval.

CUL-12 The project owner shall ensure that the CRS prepares the CRR. The project owner shall submit the report to the CPM for review and approval.

Protocol: The CRR shall include (but not be limited to) the following:

a. For all projects:

   1. description of pre-project literature search, surveys, and any testing activities;

   2. maps showing areas surveyed or tested;

   3. description of any monitoring activities;

   4. maps of any areas monitored; and

   5. conclusions and recommendations.

b. For projects in which cultural resources were encountered, include the items specified under “a” and also provide:

   1. site and isolated artifact records and maps;

2. description of testing for, and determinations of, significance and potential eligibility; and

3. research questions answered or raised by the data from the project.

c. For projects regarding which cultural resources were recovered, include the items specified under “a” and “b” and also provide:

1. descriptions (including drawings and/or photos) of recovered cultural materials;

2. results and findings of any special analyses conducted on recovered cultural resource materials;

3. an inventory list of recovered cultural resource materials; and

4. the name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the CRS completes the CRR within ninety (90) days following completion of the analysis of the recovered cultural materials. Within seven (7) days after completion of the report, the project owner shall submit the CRR to the CPM for review and approval.

CUL-13 The project owner shall submit an original, an original-quality copy, or a computer disc copy of the CPM-approved CRR to the public repository to receive the recovered data and materials for curation, to the SHPO, and to the appropriate regional California Historical Resources Information System information center (CHRIS). If the report is submitted to any of these entities on a computer disc, the disc files must meet SHPO requirements for format and content.

Protocol: The copies of the CRR to be sent to the curating repository, the SHPO, and the regional CHRIS shall include the following (based on the applicable scenario (a, b, or c) set forth in the previous condition):

a. originals or original-quality copies of all text;

b. originals of any topographic maps showing site and resource locations;

c. originals or original-quality copies of drawings of significant or diagnostic cultural resource materials found during pre-construction surveys or during project-related monitoring, data recovery, or mitigation; and

d. photographs of the site(s) and the various cultural resource materials recovered during project monitoring and mitigation and subjected to post-

recovery analysis and evaluation. The project owner shall provide the curating repository with a set of negatives for all of the photographs.

Verification: Within thirty (30) days after receiving approval of the CRR, the project owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate CHRIS.

For the life of the project the project owner shall maintain in its compliance files copies of all documentation related to the filing of the CRR with the following:

a. the public repository receiving the recovered data and materials for curation,

b. the SHPO, and

c. the appropriate CHRIS.

CUL-14 Following the filing of the CPM-approved CRR with the appropriate entities, the project owner shall ensure that all cultural resource materials, maps and data collected during data recovery and mitigation for the project are delivered to a public repository that meets the U.S. Secretary of Interior's requirements for the curation of cultural resources. The project owner shall pay any fees for curation required by the repository.

Verification: The project owner shall ensure that all recovered cultural resource materials are delivered for curation within thirty (30) days after providing the CPM-approved CRR to the public repository receiving the recovered data and materials, to the SHPO, and to the appropriate CHRIS.

For the life of the project the project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the public repository to which the project owner has delivered for curation all cultural resource materials collected during data recovery and mitigation for the project.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
CULTURAL RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Section 106 (36 C.F.R. Part 800) of the National Historic Preservation Act (16 U.S.C. § 470)	Requires federal agencies to take into account the effects of their undertakings on historic properties through consultations with federal agencies and the State Historic Preservation Officer beginning at the early stages of project planning. Regulations revised in 1997 (36 C.F.R. Part 800 et. seq.) set forth procedures to be followed for determining eligibility of properties for the National Register of Historic Places (NRHP).
Executive order 11593, "Protection of the Cultural Environment," May 13, 1971, (36 C.F.R. Part 8921)	Orders the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values.
American Indian Religious Freedom Act, Title 42, U.S.C. § 1996	Protects Native American religious practices, ethnic heritage sites, and land uses.
Native American Graves Protection and Repatriation Act (1990), Title 25, U.S.C. § 3001, *et seq.*	Defines "cultural items," "sacred objects," and "objects of cultural patrimony"; establishes an ownership hierarchy; provides for review by the Reviewing Committee; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.
STATE	
Public Resources Code, Section 5020.1	Defines several terms: (a) "Historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California; and (k) "Substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.
Public Resources Code, Section 5024.1	Establishes a California Register of Historic Resources (CRHR); sets forth criteria to determine significance; defines eligible properties; and lists nomination procedures.
Public Resources Code, Section 5097.98	Defines procedures for notification of discovery of Native American artifacts or remains and for the disposition of such materials, and prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions.
CEQA (Public Resources Code, Section 21000 et seq.; Title 14, California Code of Regulations, Section 15000 et seq.) Sections 15126.4(b) and 15064.5	Requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures, and prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project's impact on a historical resource; discusses documentation as a mitigation measure; and discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery

	plan.
Public Resources Code Section 21083.2	States that the lead agency determines whether a project may have a significant effect on “unique” archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the applicant’s cost of mitigation; sets time frames for excavation; defines “unique and non-unique archaeological resources”; and provides for mitigation of unexpected resources.
Public Resources Code Section 21084.1	Indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a “historic resource” and describes what constitutes a “significant” historic resource.
Penal Code, Section 622 1/2	States that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.
California Health and Safety Code, Section 7050.5	States that if human remains are discovered during construction, the project owner is required to contact the county coroner.
LOCAL	
Contra Costa County General Plan	Seeks to “to identify and preserve important archaeological and historic resources within the county.”

SOCIOECONOMIC RESOURCES

SOCIOECONOMIC RESOURCES - GENERAL

For purposes of evaluating potential socioeconomic impacts and benefits of the project, the study area has been defined as Contra Costa County. Property taxes, local purchases of equipment and supplies, and local spending by construction workers and permanent employee households during project construction and operation are expected to provide county-wide economic and fiscal benefits. For purposes of evaluating construction worker availability, the study area is defined as a four-county area that includes the counties within an hour's commuting distance of the project: Contra Costa, Solano, Alameda, and San Joaquin Counties.

An analysis of air quality impacts shows that with implementation of air offsets, the project will not cause significant impacts to individuals in the affected area, including any member of any minority or low-income population. Please refer to the **AIR QUALITY** section for a discussion of direct and cumulative impacts. In addition, analysis of public health impacts shows that the project will not cause significant impacts upon any individual in the affected area, including any member of any minority or low-income population. Please refer to **PUBLIC HEALTH, TRAFFIC AND TRANSPORTATION, NOISE, WATER, AND VISUAL RESOURCES** sections for a discussion of potential impacts and mitigation in these areas.

CONSTRUCTION EMPLOYMENT

Specific trades required for construction include carpenters, laborers, ironworkers, operators, pipefitters, electricians, millwrights, boilermakers, insulators, painters, and teamsters. SOCIOECONOMICS Table 1 (SA p. 348) indicates the number of construction workers in the four-county study area. Figure 8.8-8 in the AFC indicates that project construction will occur over a 22-month period. Peak construction employment will occur from month 10 through month 17, with an estimated average of 263 construction workers on site during this time. Based on employment information provided by the applicant in the AFC, and staff's independent analysis of employment data, staff believes there is a considerable surplus of construction workers available to staff the construction of the project. Because the labor pool will be drawn primarily from the four-county study area, staff does not expect workers to relocate to Contra Costa County during project construction (SA p. 348).

HOUSING

Housing characteristics described in the AFC indicate that there are about 347,000 housing units in Contra Costa County. Contra Costa County has a vacancy rate of 5.1 percent. 1998 data from the Association of Bay Area Governments (ABAG) shows that Pittsburg had 17,772 dwelling units, with 16,639 units occupied. Antioch had 28,701 dwelling units, with 26,738 units occupied. The vacancy rates for Pittsburg and Antioch are 6.38 percent and 6.84 percent, respectively. In addition to dwelling units, there are an estimated total of 519 motel/hotel units in the cities of Pittsburg and Antioch (ABAG 1998).

The applicant expects that hiring of construction and operation workers will occur within the East Bay/Delta region, and as stated above, staff agrees with this determination. Therefore, the demand for housing during construction and operation is expected to be minimal to non-existent. Any potential demand for housing as a result of project construction can be accommodated by the existing vacancy rates and existing motel/hotel rooms in Antioch or Pittsburg (SA pp. 348-349).

SCHOOLS

The Antioch Unified School District will assess the standard developer fees of $0.31 per square foot of covered and enclosed space for industrial development. The applicant states that the project will total an estimated 158,000 square feet. Therefore, the project will be assessed a one-time developer fee of $48,980. Operation and maintenance of the proposed project would include the addition of about ten workers. Construction and operation staff are expected to be hired from within the study area, and therefore these workers and their families would most likely not relocate for either construction or operation of the proposed project. No project-related adverse effects to the affected school districts are expected as a result of project construction and operation (SA p. 349).

PUBLIC SERVICES

Based on the availability of local labor for construction and operation, staff does not expect an in-migration of workers and their families. Thus, staff does not expect a significant adverse impact on medical, emergency, or protective services as a result of project construction or operation (SA p. 350).

FISCAL RESOURCES

The applicant states that the existing property generated $2.1 million in property taxes in 1997. Due to the proposed project, the assessed value of the property would likely increase and Contra Costa County would see an increase in property tax revenue. Table 8.8-10 in the AFC shows that during the construction period, between $20 and $25 million of construction materials will be purchased in Contra Costa County. AFC Table 8.8-11 states that of the total estimated annual operating costs, about $2 to $3 million will be spent in Contra Costa County. The sales tax rate in Contra Costa County is 8.25 percent; of this, six percent goes to the state, 1.25 percent goes to local general operations and transportation, and 1.00 percent goes to local special districts. Therefore, local purchasing of equipment and supplies will generate income for Contra Costa County in the form of sales tax revenues (SA p. 350).

Environmental Justice

According to the EPA Guidelines, a “minority population” exists if the minority population percentage of the affected area is greater than fifty percent of the affected area’s general population. Data from **SOCIOECONOMICS TABLES 6** and **7** (SA pp. 355-356) indicate that the minority population of the affected area is between 27 percent and 31 percent. Contra Costa County (**SOCIOECONOMICS Table 2**, SA p. 354) was used as the appropriate unit of geographic analysis, because it is the political jurisdiction where the project would be

constructed. Comparing the six-mile radius, which has a total minority population of 31 percent to Contra Costa County (with a total minority population of 36.4 percent) indicates that the minority population in the affected area is not meaningfully greater than and is in fact less than the minority population percentage in the larger geographic area or political jurisdiction. Therefore, based on the 50 percent threshold and the meaningfully greater analysis, the project will not disproportionately affect the minority population within the affected area of the six-mile radius (SA p. 357).

The poverty threshold for a family of four persons was $12,674 per year (1990 US Census Data). The total number of persons living below the poverty level is 9,669, or about 8.7 percent of the total population of the census tracts within six miles of the CCPP Unit 8 project site. Because the EPA Guidelines do not give a percentage of the population as a threshold to determine the existence of a low-income population, the fifty-percent threshold used for minority populations was applied. Based on this threshold, there is not a significant low-income population within the six-mile radius of the project (SA p. 357).

CUMULATIVE IMPACTS

Because the labor pool will be drawn primarily from the four-county area, staff does not expect workers to relocate to Contra Costa County during project construction. For these reasons, staff does not expect any adverse cumulative impacts to schools, housing, or public services (SA p. 358).

FINDING

Construction and operation of the project will not impact police, fire, or emergency medical services. Because of the availability of local construction labor, the project will not impact housing and schools in the area. The demographic screening analysis and environmental impact analysis indicates that the project will not disproportionately affect a minority population within the project's six-mile radius. Adoption of Conditions of Certification will ensure that project impacts to socioeconomic resources are less than significant.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Contra Costa County first, and Alameda, San Joaquin, and Solano Counties second unless:

1. To do so will violate federal and/or state statutes;
2. The materials and/or supplies are not available;
3. Qualified employees for specific jobs or positions are not available; or
4. There is a reasonable basis to hire someone for a specific position from outside the local area.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) copies of

contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months. The CPM shall review and comment on the submittal as needed.

SOCIO-2 The project owner shall pay the statutory school facility development fee and fire facilities fee as required at the time of filing for the "in-lieu" building permit with the Contra Costa County Building Department.

Verification: The project owner shall provide proof of payment of the statutory development fee in the next Monthly Compliance Report following the payment.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
SOCIOECONOMIC RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	Signed on February 11, 1994, the order requires the US EPA and all other federal agencies to develop environmental justice strategies. The US EPA subsequently issued guidelines that require all federal agencies and state agencies receiving federal funds to develop strategies to address this problem. The agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.
Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241	(Codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national programs in all programs or activities receiving federal financial assistance.
STATE	
California Government Code, section 65995-65997	SB 50 and other statutory amendments enacted in 1998 provide that, notwithstanding any other provisions of local or state law (including CEQA), state and local agencies may not require mitigation for the development of real property for effects on school enrollment except as provided by Government Code Section 65996(a). The relevant provisions restrict fees for the development of commercial and industrial space to a maximum of $0.31 per square foot of "chargeable covered and enclosed space." (Govt. Code, § 5995(b)(2))
LOCAL	There are no applicable socioeconomics LORs.

BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES - GENERAL

The project site is located within a disturbed, industrialized area. Located within the CCPP site are: (1) operational and retired plant facilities; (2) regraded ruderal areas; and (3) areas landscaped with ornamental and native trees. Plants and wildlife identified on-site and those expected to utilize the site are common species, none of which are federally or state listed. The site's poor habitat quality and the limited extent of the proposed construction and operating activities is not expected to result in significant impacts to biological resources on the site or in adjacent areas.

SPECIAL STATUS SPECIES

The Unit 8 project site is highly disturbed which precludes its use by most special status animal species, other than on a transient basis. One special status bird species, the loggerhead shrike (*Lanius ludovicianus*), a Federal Species of Concern, was observed during a site survey (Southern 2000a, page 8.2-18). Due to the disturbed and industrialized nature of the site and area, and the tolerant nature of this species, it is unlikely that the new project would represent an important adverse impact, even for this individual loggerhead shrike. No raptor nests were identified on site, nor were nests of the California gull (*Larus californicus*) or other special status bird species. The site does not provide suitable aquatic habitat for special status amphibian species, such as the California red-legged frog (*Rana aurora draytonii*) (CRLF) or the California tiger salamander (*Ambystoma californiense*). Although the San Joaquin kit fox (*Vulpes macrotis mutica*) historically and probably still, inhabits the foothills to the south, no verified sightings have been reported within the project vicinity (Laurie Briden, CDFG, pers. comm.; CNDDB 2000). The project site's high human activity levels and night lighting, would likely preclude the use of the site by the San Joaquin kit fox (SA p. 366).

OAK TREES

There are 28 mature and 18 sapling coast live oak trees (*Quercus agrifolia*) on-site that have been planted along the bank of the fill area (Southern 2000a, page 8.2-4), and are currently in poor health. The Contra Costa tree ordinance, Tree Protection and Preservation (chapter 816-6), requires all oak trees removed to be replaced onsite at a minimum replacement ratio of 2:1. Condition of Certification **BIO-5** ensures compliance with this ordinance (SA p. 366).

HAZARDS TO BIRDS

Due to the industrialized nature of the area, it is unlikely that nocturnal special status bird species would use the proposed site either on a transient basis or as a migratory route. Considering the relatively low structure height and the lack of guy wires, a significant level of collisions is not anticipated with or without exhaust stack lighting. In addition, transmission lines larger than 65 kV generally have sufficient clearance between two conductors, or a conductor and the ground, to protect large birds from electrocution. The proposed installation of transmission lines and related facilities according to the guidelines suggested in the Avian

Power Line Interaction Committee report (1996) will eliminate most impacts associated with electrocution (SA pp. 367-368).

COOLING TOWER DRIFT

Cooling tower drift impacts on sensitive vegetation or wildlife species near the project site are not expected to be significant. The drift is comprised of a fine water mist, with low levels of pollutants. The 59.5 feet tall cooling towers will be designed to have a drift rate not to exceed 0.0005 percent of the circulating water flow (Southern 2000a, page 8.2-10). Quarterly wind data (Southern 2000a, Appendix C1) indicates prevailing winds are out of the northwest and would cause cooling tower drift to be directed mainly away from potentially sensitive plant areas along the river shoreline. Amphibians have been found to be adversely impacted by chemical pollutants. However, the cooling tower drift is not expected to have an impact on either the California red-legged frog (*Rana aurora draytonii*) or California tiger salamander (*Amybstoma californiense*).

SHORELINE RESOURCES

The proposed project will not require new water intake or discharge structures for the cooling water system. No construction activities associated with Unit 8 will take place on the shoreline, within the San Joaquin River, or in wetlands associated with the river. Therefore, no significant impacts are expected to these resources.

AQUATIC ORGANISM IMPINGEMENT, ENTRAINMENT AND THERMAL EFFECTS

To evaluate the potential for thermal impacts on aquatic organisms, in 1991 and 1992 PG&E (then owner of CCPP) conducted five surveys to evaluate the thermal plume from operation of the power plant under different seasonal, tidal and plant operating conditions (PG&E 1992). The study concluded that there were no adverse effects on species abundance and diversity in the vicinity of the thermal discharge. Staff finds no evidence that Unit 8 will contribute in any meaningful way to a rise in the temperature of water discharge. Therefore, staff finds that Unit 8's thermal effects on aquatic organisms will be less than significant.

The proposed new Unit 8 cooling tower system would take approximately 5 percent of the water discharged from Units 6 and 7 (prior to it being discharged to the Delta) and re-use this water for cooling Unit 8. Therefore, there would be no new additional intake flows for Unit 8 when Units 6 and 7 are operating. An evaluation of the impingement, entrainment, and thermal discharge effects of the proposed Unit 8 cooling water system on the estuarine and marine environment has been completed by the applicant's consultant, which determined that because Unit 8 will re-use discharge water from the existing CCPP Units 6 and 7, it will not produce significant adverse effects to aquatic biological resources. When CCPP Units 6 and 7 are operating, Staff agrees with this determination. However, when CCPP Unit 8 operates by itself, it may be responsible for the entrainment losses of state or federally listed species. Unit 8 would be responsible for one of four pumps operating at 50 percent capacity (37,500 gallons per minute)(12.5 percent of normal water use) for a small portion of power plant operation time each year. No significant impingement impacts are expected to result from the velocity of the intake water for one pump at 50 percent capacity. However, aquatic organisms – potentially

including state and federally listed species – would still be entrained in the 37,500 gallons per minute of water used when Unit 8 is operated by itself.
The applicant's compliance with the Regional Water Quality Control Board's NPDES permit (see **SOIL & WATER RESUORCES**), and the ESA/2081 mitigation requirements will mitigate Unit 8's potential impacts to aquatic biological resources. In addition, Unit 8 will not be permitted to operate when Units 6 and 7 are shut down, until the ESA/2081 permits (incidental take permits) are issued, or another suitable agreement with the USFWS, NMFS, and CGFG can be reached. Currently, CCPP Units 6 and 7 can operate and take listed species under an agreement between Mirant and the agencies, but this agreement does not include Unit 8. This agreement will be replaced by the ESA/2081 permits (SA p. 369-372).

CUMULATIVE IMPACTS

No impacts are expected to wetlands or non-degraded uplands from this project, therefore, no cumulative impacts associated with habitat loss and degradation are expected. No impacts are anticipated due to the Unit 8 project, that will result in the introduction of disease, predators, or competitors to natural areas, therefore no cumulative impacts associated with these issues will result. It is difficult to ascertain the cumulative effects of the increase in air pollution associated with the project. However, the increased level of emissions associated with the operation of Unit 8 is very small and must meet strict human health standards, thus little cumulative impact to wildlife is expected to result.

The Unit 8 terrestrial site is surrounded by decades of past development and the site itself has been significantly affected during that time. Due to these previous impacts, CCPP Unit 8's contribution to cumulative impact on on-site upland biological resources are not expected to be significant. The amount of water use when CCPP Unit 8 operates alone is 12.5 percent of the current use for approximately 3 percent of annual operation time. Therefore, cumulative impacts to aquatic resources resulting from the construction and operation of Unit 8 will be minor most of the time. However, Unit 8 operating alone (without Units 6 and 7) could result in significant impacts without approved federal and state incidental take permits (ESA/2081) and the accompanying mitigation requirements (SA pp. 372-373).

FINDING

Potential impacts to biological resources associated with this project are not expected to be significant with the adoption of Conditions of Certification. This includes any terms and conditions included in a federal or state incidental take authorization (ESA Incidental Take Permit (ITP) or Incidental Take Statement (ITS) permit/2081 permit) under the respective Endangered Species Acts and all terms and conditions found in the State Streambed Alteration permit. In addition, with the adoption of Conditions of Certification, the project is expected to comply with all laws, ordinances, regulations and standards.

CONDITIONS OF CERTIFICATION

BIO-1 Construction site and/or ancillary facilities preparation (described as any ground disturbing activity other than allowed geotechnical work) shall not begin until an

Energy Commission Compliance Project Manager (CPM) approved Designated Biologist is available to be on-site.

Protocol: The Designated Biologist must meet the following minimum qualifications.

1. a Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
3. one year of field experience with biological resources found in or near the project area; and
4. an ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement.

Verification: At least sixty (60) days prior to the start of any ground disturbance activities, the project owner shall submit to the CPM for approval the name, qualifications, address, and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement as specified in the Condition must be submitted in writing at least ten working days prior to the termination or release of the preceding Designated Biologist.

BIO-2 The CPM approved Designated Biologist shall perform the following duties:

1. Advise the project owner's supervising construction or operations engineer on the implementation of the biological resources Conditions of Certification;
2. Supervise or conduct mitigation, monitoring, and other biological resources compliance efforts; and
3. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification.

Verification: During project construction, the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports to the CPM. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

BIO-3 The project owner's supervising construction and operations engineer shall act on the advice of the Designated Biologist to ensure conformance with the biological resources Conditions of Certification. The project owner's supervising construction and operating engineer shall halt, if necessary, all construction activities in areas specifically identified by the Designated Biologist as sensitive to assure that potential significant biological resources impacts are avoided.

The Designated Biologist shall:

1. Inform the project owner and the supervising construction and operating engineer when to resume construction; and
2. Advise the CPM if any corrective actions are needed or have been instituted.

Verification: Within two (2) working days of a Designated Biologist notification of non-compliance with a Biological Resources Condition or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a Condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five (5) working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIO-4 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities (including any access roads, storage areas, transmission lines, water and gas lines) during construction and operation, are informed about sensitive biological resources associated with the project.

Protocol: The Worker Environmental Awareness Program must:

1. be developed by the Designated Biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;

2. discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

3. present the reasons for protecting these resources;

4. present the meaning of various temporary and permanent habitat protection measures; and

5. identify whom to contact if there are further comments and questions about the material discussed in the program.

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

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

Verification: At least thirty (30) days prior to the start of rough grading, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for the duration of their employment and for six (6) months after their termination.

BIO-5 The project owner will implement the mitigation measures proposed in the Application for Certification regarding biological resources (Southern 2000a, pages 8.2-13 to 8.2-14). The project owner's proposed mitigation measures will be incorporated into the final Biological Resources Mitigation Implementation and Monitoring Plan (see Condition of Certification **BIO-8**, below) unless the mitigation measures are inconsistent with the mitigation measures required by the U. S. Fish and Wildlife Service, National Marine Fisheries Service, and the California Department of Fish and Game in their respective Biological Opinions and Incidental Take Statement(s) or Permit(s), 2081 permit, or in the State Streambed Alteration Agreement.

Protocol: The project owner will make certain the following are completed:

1. Upon completion of construction, all areas subject to temporary ground disturbance will be subject to post-construction cleanup.

2. All grass areas subject to temporary disturbance due to construction activities will be seeded with an appropriate grassland seed mix.

3. In accordance with the Contra Costa tree ordinance, Tree Protection and Preservation (chapter 816-6), all oak trees removed will be replaced onsite with a minimum replacement ratio of 2:1. Removal of trees will be conducted during the non-breeding season for local birds (September-January).
4. The applicant shall establish erosion control measures to minimize the terrestrial and airborne movement of soils, sediments, and other substances

into the San Joaquin River or connected waterways, as described in the AFC pages 8.9-4 and 8.9-5.

5. If tree removal is to be undertaken between February-August, a pre-construction survey(s) shall be conducted for nesting birds at least 30 days prior to any tree removal. If a nesting bird(s) is detected, the project owner shall consult with the CEC CPM on how to proceed.

6. To ensure the likelihood of successful completion of required mitigation, the applicant shall designate a qualified biologist to advise the project owner or its project manager on the implementation of these Conditions of Certification, and to supervise and/or conduct mitigation, monitoring, and other biology compliance efforts.

7. The applicant shall construct, monitor, maintain and evaluate the effectiveness of the Aquatic Filter Barrier.

8. Implement a Worker Environmental Awareness Program (see **BIO-4**).

Verification: At least thirty (30) days prior to start of any project related ground disturbance activities, the project owner shall provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine the plan's acceptability within fifteen (15) days of receipt of the final plans. Implementation details for the above measures shall be included in the BRMIMP.

BIO-6 The project owner will implement the following staff proposed mitigation measures and the project owner shall include them in their BRMIMP submittal. The BRMIMP shall include implementation measures for each of the following protocol measures.

Protocol: The project owner will:

1. implement all mitigation, monitoring and compliance conditions included in the Commission's Final Decision;

2. implement all terms and conditions contained in the USFWS, NMFS, and CDFG Biological Opinion(s)/Incidental Take Statement(s) or Permit(s) (ESA/2081);

3. implement all terms and conditions contained in the State Streambed Alteration Agreement;

4. build new above-ground transmission lines and connections to reduce the risk of electrocution for large birds;

5. describe in detail the monitoring methodologies, duration, and frequency for each type of monitoring established for mitigation actions;

6. describe performance standards to be used to help decide if/when proposed mitigation is or is not successful, including the effectiveness of the Aquatic Filter Barrier;

7. implement a monitoring and evaluation program that will determine the effectiveness of the Aquatic Filter Barrier. The project owner will determine the effectiveness of the Aquatic Filter Barrier by conducting impingement and entrainment sampling (day and night) for eggs and larvae of fish, for a minimum of six months (including the period February1 through July31) following Aquatic Filter Barrier installation and operation. Source water shall be sampled inside and outside the Aquatic Filter Barrier enclosed water area, for eggs and larvae of fish, at the same time as impingement and entrainment (day and night) sampling in order to determine the effectiveness of the Aquatic Filter Barrier. If impingement sampling in the field is infeasible, impingement studies may be conducted in a laboratory setting. The project owner will submit an Impingement and Entrainment Study Plan for CPM approval prior to construction of the AFB. The sampling and evaluation program may be modified as appropriate and approved by the CEC CPM during the evaluation period. Such changes, if any, will be implemented in consultation with the applicable agencies.

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

9. reduce exterior lighting on all structures to the minimum except for those required for aviation warning, all other required exterior lighting on structures will be shielded to direct light downward;

10. reduce soil erosion during construction and operation by applying mitigation measures identified in the AFC and comply with State Water Resources Control Board/Regional Water Quality Control Board standards;

11. reduce the potential for animals falling into trenches or other excavated sites by covering them at the end of the work day if left unattended, or provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches, and inspect trenches each morning for trapped animals prior to the beginning of construction. Construction will be allowed to begin only after trapped animals are able to escape voluntarily.

12. clearly mark construction area boundaries with stakes, flagging, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction. All equipment storage will be restricted to designated construction zones or areas that are currently not considered sensitive species habitat.

13. post signs and/or fence the power plant construction site and laydown areas to restrict vehicle access to designated areas.

14. designate a specific individual as a contact representative between the project owner, USFWS, NMFS, Energy Commission, and CDFG to oversee compliance with mitigation measures detailed in the Biological Opinion.

15. provide a post-construction compliance report, within forty-five (45) calendar days of completion of the project, to the USFWS, CDFG, and the Energy Commission.

16. make certain that all food-related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited.

17. prohibit firearms except for those carried by security personnel.

Verification: At least thirty (30) days prior to the start of surface disturbing activities at the project site and/or at ancillary facilities, the project owner shall provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine the plans acceptability within 15 days of receipt of the final plan. Within 30 days after completion of construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which condition items are still outstanding.

BIO-7 Prior to the operation of CCPP Unit 8 by itself, the project owner shall provide final copies of the Biological Opinions/Incidental Take Statement(s) or Permit(s) (ESA/2081) obtained from the USFWS, NMFS, and CDFG and the Streambed Alteration Agreement from CDFG and incorporate the terms of the Permit(s)/Statement(s)/Agreement(s) into the BRMIMP.

Verification: At least 90 days prior to the start of CCPP Unit 8 operation by itself, the project owner shall submit to the project CPM copies of the final Biological Opinions/Incidental Take Statement(s) or Permit(s) from the USFWS, NMFS, and CDFG.

BIO-8 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and shall implement the measures identified in the plan.

1 The final BRMIMP shall identify:

1. all mitigation, monitoring, and compliance measures proposed by the Applicant, as well as those contained in, Condition of Certification **BIO-4;**

2. all mitigation, monitoring, and compliance measures proposed by the CEC staff, as well as those contained in, Condition of Certification **BIO-5;**

3. all mitigation, monitoring, and compliance measures included in other Biological Resources Conditions of Certification.

4. a process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: At least thirty (30) days prior to start of any project related ground disturbance activities, the project owner shall provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine the plan's acceptability within fifteen (15) days of receipt of the final plan. The project owner shall notify and get approval from the CPM five (5) working days before implementing any modifications to the BRMIMP.

BIO-9 The project owner shall incorporate into the facility closure plan a Biological Resources Element that includes measures to address biological resources issues. The biological resource facility closure measures shall also be incorporated into the BRMIMP for this project.

Protocol: For permanent closure, biological resource-related measures shall include:

1. Removal of all Unit 8 power plant site facilities, including the AFB or proposed alternatives actions;

2. Measures to restore wildlife habitat and promote the re-establishment of native plant and wildlife species, and
3. Updating the plan to address future biological resources issues.

For temporary, but prolonged closure, biological resource-related measures shall include:

1. Notifying the CPM of the project owner's decision to initiate a temporary, but prolonged closure;

2. Turning off the once-through cooling water system pumps; and

3. Updating the plan to address future biological resources issues.

Verification: At least twelve months (or a mutually agreed upon time) prior to the commencement of permanent closure activities a Biological Resources Element will be incorporated into the Facility Closure Plan and the BRMIMP and submitted to the CPM for review and comment. The CPM will be notified within two weeks of the project owner's decision for a temporary, but prolonged closure and provide an updated plan of action.

BIO-10: The project owner shall obtain a California Fish and Game Code , Section 1603 Streambed Alteration Agreement as part of the Aquatic Filter Barrier installation and operation.

Verification: The project owner will submit copies of the final CDFG Streambed Alteration Agreement(s) to the CPM at least 60 days prior to the start of AFB installation. The project owner shall notify the CPM in writing of any changes to and/or renewal of these permits/agreements at least 30 days prior to the effective date of the change.

BIO-11: The project owner will submit a workplan that discusses in detail the installation of the proposed Aquatic Filter Barrier (AFB), also known as the Gunderboom™. This workplan will identify all principal materials, methods, and equipment that will be used for the installation of the AFB. The workplan will also identify and demonstrate compliance with all LORS associated with the Gunderboom™ project including the California Fish and Game Code, Section 1603 Streambed Alteration Agreement administered by the California Department of Fish and Game, and any permit required by the U.S. Army Corp of Engineers.

Verification: The AFB workplan will be submitted to the CPM and all other agencies issuing permits for the project at least 90 days prior to the start of AFB installation activities. The workplan will contain copies of all final draft or final permits required for the installation of the AFB, and the Applicant will adhere to all conditions specified in these permits. The project owner will provide a summary report of the AFB installation that details and explains any activities, events, or incidents that deviate from those described in the workplan. The summary report will be sent to the CPM, and all other agencies issuing permits for the project within 30-days of completion of the AFB installation project.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
BIOLOGICAL RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Endangered Species Act of 1973 (16 U.S.C. §1531 et seq.), and implementing regulations, (50 C.F.R. §17.1 et seq.)	Designate and provide for protection of threatened and endangered plants and animals and their critical habitat.
Migratory Bird Treaty Act (16 U.S.C. §701-718) and implementing regulations (50 C.F.R. §10.1-24.12)	Provides protection for migratory birds
River and Harbor Act of 1899 (33 U.S.C. § 401 et seq.)	Protects waters of the U.S.
Clean Water Act (33 U.S.C. §§1251-1376; 30 C.F.R. §330.5(a)(26))	Protects wetlands and waters of the U.S.
STATE	
California Native Species Conservation and Enhancement Act, (Fish & Game Code, §1750 et seq.)	Mandates as state policy, maintenance of sufficient populations of all species of wildlife and native plants and the habitat necessary to ensure their continued existence at optimum levels.
California Endangered Species Act of 1984 (Fish & Game Code, 2050-2098)	Protects California's endangered and threatened species or those designated as candidates for listing.
California Environmental Quality Act (CEQA) (Pub. Resources Code, §21000 et seq.)	Seeks to protect the physical environment within California.
Native Plant Protection Act (Fish & Game Code, §1900 et seq.)	Establishes criteria for determining if a species, subspecies, or variety of native plant is endangered or rare and regulates the taking, possession, propagation, transportation, exportation, importation, or sale of endangered or rare native plants.
Department of Fish and, Code section1603	Requires that any person planning to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by the California Department of Fish and Game (CDFG), or use any material from the streambeds, must notify the department prior to such activity. If the Department determines that the project may adversely affect existing fish and wildlife resources, the department will require a Lake or Streambed Alteration Agreement.
Department of Fish and Game Code sections 3511, 4700, 5050, and 5515	Prohibit the taking of birds, mammals, reptiles and amphibians, and fish, respectively, listed as fully protected in California.
Fish and Game Code section	Makes it unlawful to take or possess any migratory non-game bird as

3513	designated in the Migratory Bird Treaty Act except as provided for under federal rules and regulations.
LOCAL	
Contra Costa County General Plan (1996) Goal 8-D	Protects ecologically significant lands, wetlands, plants, and wildlife habitat.
Contra Costa County General Plan (1996) Goal 8-E	Protects rare, threatened, or endangered species and increases the functions and values of wetlands.
Contra Costa County General Plan (1996) Goal 8-F	Preserves and restores natural characteristics of the Bay-Delta.
Contra Costa Tree Ordinance (Chapter 816-6)	Protects and preserves trees.

SOIL AND WATER RESOURCES

SOIL AND WATER RESOURCES - GENERAL

The CCPP property is located on the south bank of the San Joaquin River, which is near the western edge of the Sacramento River Delta. The CCPP site has a relatively flat topography with some sloping along the shoreline and around man-made structures and facilities (Southern 2000a, AFC page 8.15-1). Annual average precipitation in Antioch is 12.8 inches, with a maximum average monthly precipitation of 2.6 inches in January. The climate is characterized by warm, dry summers and mild, wet winters. Average summer and winter temperatures are approximately 75°F and 45°F, respectively (SA p. 393).

The project site is located near the confluence of the Sacramento and San Joaquin Rivers, in the western Sacramento River Delta area. The San Joaquin River in the vicinity of the CCPP is strongly influenced by both tidal and river flows. The water quality of the San Joaquin River in the vicinity of the CCPP is variable due to its position between the estuarine transition zone that separates the upstream freshwater delta from the downstream saltwater bay. Near the plant, the river changes from fresh water (during periods of high river flow) to brackish water (during periods of lower flow). The water temperature of the river in the vicinity of the CCPP varies seasonally between a low in January of 48°F and a high in July and August of 73°F. Table 1 in the **SOILS AND WATER RESOURCES** section of the FSA (SA p. 395) shows the ranges of the results of the water quality analysis performed on the San Joaquin River near the project site from 1993-1997 during different times of the year. Beneficial uses of water from the San Joaquin River include industrial, commercial, domestic, irrigation, recreation and preservation of wildlife. The San Joaquin River is identified as being impaired for a variety of contaminants, including a number of pesticides, selenium, boron and others (California State Water Resources Control Board 2000). This impaired listing indicates that the ambient concentrations of these constituents are too high to support the beneficial uses identified for this water body (SA pp. 394-395).

The Phase I ESA (described in detail in the **WASTE MANAGEMENT** section of the FSA) found several recognized environmental conditions at the site and concluded that there is a potential for soil and groundwater contamination. In order to further characterize the site, the Phase II ESA involved subsurface testing of soil and groundwater and evaluation of data collected to determine if the soil or groundwater would require remediation. The Phase II investigations showed that several contaminants exist in soil and groundwater at the proposed site, including volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), metals, and polychlorinated biphenyls (PCBs). At the northern end of the proposed site, there is an area containing elevated levels of petroleum hydrocarbons in groundwater (Southern 2000c, Plate 5-1). In the construction laydown area, towards the southern part of the site, there is one small area with elevated levels of petroleum hydrocarbons in the water and a larger area containing arsenic in groundwater (SA p. 396).

The entire surface of the plant area has been previously graded and covered with a layer of artificial fill and therefore it is relatively impervious (Southern 2000a, AFC page 8.15-10). Existing drainage occurs from southeast to northwest. Most of the CCPP is underlain by soil

identified as Delhi sand, characterized by rapid permeability. Joice Muck – poorly drained material formed in saltwater marshes – underlies the northeastern portion of the property near the marina. The Delhi sand has low shrink-swell potential and the Joice Muck, confined to the marina area, has high shrink but low swell potential. The erosion characteristics of the soils within the project site are minimal (Southern 2000a, AFC page 8.15-12). Both the Delhi and Joice Muck soils pose limitations for revegetation. The Delhi soil type has excessive drainage characteristics and the Joice Muck drains poorly and exhibits low pH and high salinity characteristics (SA pp. 397-398).

EROSION AND SEDIMENTATION

Soils at the power plant site are slightly susceptible to water erosion. Earth disturbance will consist of topsoil and aggregate material during excavation. The excavated topsoil material will be stored as stockpiles for future reuse. Areas not covered by asphalt will consist of annual vegetation for short-term erosion control followed by permanent vegetation for long-term erosion control (SA p. 400).

Temporary and permanent disturbances related to construction of linear facilities (pipelines) are expected to occur within the existing CCPP site. Since the amount of impervious surface will not be increased, surface runoff will not be increased, and the existing CCPP stormwater system will be used for both the existing project and Unit 8. Any additional pipelines or surface drains or channels will be located onsite and will be integrated into the existing stormwater system (SA pp. 400-401).

Construction of the proposed project could result in soil compaction from the erection of foundations and paving and from vehicle traffic along access roads and equipment storage areas. Increased runoff, erosion and sedimentation can result from compaction (Southern 2000a, AFC page 8.9-3). The applicant has provided a draft SWPPP that identifies potential temporary and permanent Best Management Practices. This plan and provisions for the final draft are required by Conditions of Certification (SA p. 401).

SPILL PREVENTION

The CCPP Spill Prevention Control and Countermeasure (SPCC) Plan covers chemical spill control and management of the hazardous materials that will be stored and used on the site (refer to the **HAZARDOUS MATERIALS MANAGEMENT** section of the FSA and associated Conditions of Certification for more information). As described in the draft SWPPP, hazardous materials at the CCPP Unit 8 would be stored indoors in watertight containers and/or surrounded by secondary containment structures. Bermed containment will be used in areas containing bulk hydrocarbon storage areas. Some of the hazardous materials used during construction include petroleum hydrocarbons, cleaning fluids and solvents. Waste generated during construction will be taken to a temporary waste storage facility onsite then transported to an authorized waste management facility. Major hazardous materials stored onsite during operation of the proposed CCPP facility include sulfuric acid and aqueous ammonia. These materials would be stored in aboveground storage tanks that would be surrounded by a containment berm. Other containment/treatment facilities include curbs, berms, concrete pits, and oil/water separators (Southern 2000a, AFC pages 8.12-5, 8.12-6, 8.12-7) (SA p. 401).

WATER SUPPLY

The existing process water treatment facility at the power plant has sufficient capacity to meet the proposed project's requirements. In addition, the current CCPP potable water use represents approximately 0.006 percent of the total capacity of the City of Antioch, and the addition of 10 personnel will not create any significant additional demands on the potable water system, although there will be a small cumulative impact on the potable water supply (SA pp. 402-403).

WATER QUALITY AND COOLING AND WASTEWATER DISCHARGES

SOILS & WATER RESOURCES TABLE 4 (SA p. 404) shows the current discharge chemistry of the Unit 6 and 7 outfall, that of the Unit 8 cooling tower blowdown, and the mixed discharge with Units 6-8 together at average conditions. These constituent concentrations are considered in the draft NPDES permit, the California Toxics Rule, and in the water quality objectives for the Central Valley set by the RWQCB (SA pp. 404-405).

The mixed bed demineralizer will periodically be regenerated with sodium hydroxide and sulfuric acid depending on the ionic charge of the bed. The waste from this process will be treated to be neutralized and discharged to the river under the existing NPDES permit. (Southern 2000a, pages 8.14-8). Sanitary wastes will be treated in the existing plant on-site septic tanks and leaching fields (SA p. 405-406).

Stormwater runoff will not be significantly changed by the addition of Unit 8. This is due to the fact that there will be no significant increase in impervious surfaces or runoff volumes. Currently stormwater runoff from the area where the new unit is to be constructed is collected and discharged to the San Joaquin River through existing outfalls. When Unit 8 is completed, curbs will be constructed around areas that may contain oily materials. The stormwater runoff and runoff from plant drains from the curbed areas will be conveyed via a ditch or pipe to the existing oil/water separator system. Water from the oil/water separator system is conveyed to the onsite wastewater treatment facility and then discharged to the San Joaquin River. Stormwater runoff from the remaining area of the site will be directed towards existing outfalls and discharged to the river. (Southern 2000o, page 106-2) (SA pp. 406-407).

THERMAL EFFECTS OF UNIT 8 COOLING TOWER BLOWDOWN

Due to the negligible amount of flow of the Unit 8 cooling tower blowdown when compared to the flow from existing Units 6 and 7, the impact of proposed Unit 8 on the thermal discharge temperature to the San Joaquin River is expected to be negligible. The draft NPDES permit has continued the exception to the Thermal Plan limits granted for the previous permit, which was based on the 1992 thermal effects study performed by the then owner, PG&E. Should the installation of the AFB alter the nature of the thermal plume, the permit contains a provision that allows it to be reopened and the altered thermal plume evaluated. An additional thermal effect study could then be required (SA pp. 407-408).

CONTAMINATED SOILS

The applicant has identified areas of deep excavation that may encounter groundwater. The first area includes the circulating waterline cooling tower makeup and discharge and the second area consists of makeup water piping running from existing Units 6 and 7 to the circulating water line, as well as to the Units 6 and 7 discharge line. The applicant has identified that available data suggests that there is no contaminated groundwater in the first area and that the pipeline routing will avoid contaminated groundwater in the second area (Southern 2000o, page 116-2). Condition of Certification **SOIL & WATER 8** addresses potential handling of contaminated groundwater.

SITE DRAINAGE

Since the 20 acres to be used for CCPP Unit 8 are already relatively impervious, an increase in stormwater runoff from the project is not anticipated. Therefore, the applicant intends to use the existing storm drainage system to handle runoff during project operation. Condition of Certification **SOIL & WATER 3,** addresses any potential impacts from the existing storm drainage system that was constructed in 1951. If the system was undersized by current standards, the runoff from Unit 8 facilities could be handled separately to minimize impacts to the existing system (SA p. 408).

AQUATIC LIFE, WATER INTAKE, AND COOLING/WASTEWATER DISCHARGES

Impacts to aquatic life are addressed by the Draft Habitat Conservation Plan (HCP)(Southern 2000n), which analyzed the combined impacts and joint operation of the Pittsburg and Contra Costa power plants. The plan will be implemented under either Section 7 or Section 10(a)(1)(B) of the federal Endangered Species Act to obtain an incidental take permit for the project. The HCP is intended to mitigate the take as defined by the ESA and California Endangered Species Act (CESA) for several threatened and endangered species and several unlisted species. The project-related activities that will be addressed by the HCP include cooling water intake and discharge, maintenance and repair, fisheries monitoring, and the enhancement and restoration activities at the Montezuma Enhancement Site. The final HCP and the associated ESA Section 7 or Section 10(a) permit will have a term of 15 years from the date of issuance. This issue is discussed further in the **BIOLOGICAL RESOURCES** section of the FSA. Compliance with Section 10 of the River and Harbor Act and Section 1603 of the California Fish and Game Code is required for the installation and operation of the AFB. There are also conditions on the operation of the CCPP contained in the draft NPDES permit. These measures are specified to reduce impingement and entrainment of aquatic organisms, and to minimize adverse thermal impacts to aquatic life.

CUMULATIVE IMPACTS

Since the project is proposing to use water that has already been used for cooling water purposes in the existing units, there will be no additional water drawn from the San Joaquin River. However, since the addition of Unit 8 to the existing power generation complex will use cooling towers and require approximately 5000 gallons per minute of makeup water derived from the San Joaquin River, there will be a small but insignificant cumulative consumptive

impact to water resources. The applicant has proposed to discharge cooling tower blowdown from CCPP unit 8 into the Unit 6 and 7 outflow. The amount of blowdown is extremely small compared to the discharge from Units 6 and 7, chemicals from the cooling tower will be highly diluted, and thermal differences should be minor. Therefore, staff does not anticipate any contribution from CCPP Unit 8 to any significant cumulative impacts in the area of cooling water discharge. Construction and operational activities related to the CCPP Unit 8 project may cause accelerated wind and water erosion.

FINDING

With adoption of Conditions of Certification, soil and water resources impacts would not be significant.

CONDITIONS OF CERTIFICATION

SOILS & WATER 1: Prior to site mobilization of the proposed project and any ground disturbance activities associated with construction of any project linear element, the project owner shall obtain Energy Commission staff approval for a Storm Water Pollution Prevention Plan (SWPPP) as required under the General Stormwater Construction Activity Permit for the project (see Condition of Certification Soil & Water 3).

Verification: Thirty days prior to the start of any site mobilization activities associated with the construction of the project and/or ground disturbing activities associated with construction of any project linear element, the project owner shall submit a copy of the Storm Water Pollution Prevention Plan (SWPPP) to the Energy Commission Compliance Project Manager (CPM) for review and approval. Approval of the plan by the Energy Commission CPM must be received prior to the initiation of any site mobilization activities associated with construction of any project element.

SOILS & WATER 2: Prior to beginning any site mobilization activities associated with construction of the project and/or ground disturbance activities associated with construction of any project linear element, the project owner shall obtain staff approval for a final erosion control and revegetation plan that addresses all project elements. The final plan to be submitted for Energy Commission's approval shall contain all the elements of the draft plan with changes made to address any staff comments and the final design of the project (see Condition of Certification Soil & Water 3).

Verification: The erosion control and revegetation plan shall be submitted to the Energy Commission CPM no later than thirty days prior to site mobilization and/or ground disturbance associated with construction of linear facilities. Approval of the final plan by the Energy Commission CPM must be received prior to the initiation of site mobilization activities associated with construction of any project element.

SOILS & WATER 3: Prior to commercial operation, the project owner, as required under the General Industrial Activity Storm Water Permit, will develop and implement a Storm Water Pollution Prevention Plan (SWPPP). Approval for the final Industrial Activities SWPPP must be obtained from Energy Commission staff prior to commercial operation of the power plant. The SWPPP will contain the following:

1. Erosion Control and Stormwater Management drawings need to accompany the narrative portion of the SWPPP. Both the drawings and the narrative need to be detailed and specific and include the following amendments and additions for the proposed CCPP project:
2. The topographic features of the proposed project including areas involving all proposed pipeline construction, laydown (staging) area, and stockpile location(s). The mapping scale should be 1”=100’ or less (1”=50’ recommended). The drawings should depict the surrounding area (east of site) including the topography and existing features should be provided on the drawings. The drawings should also show existing structures, drainage pipes, and diversion swale(s).
3. Soil use limitations associated with construction and revegetation need to be acknowledged and resolutions provided to assist the contractor in overcoming any limitation (refer to the soil survey for specific soils information).
4. Proposed contours should be shown tying in with existing ones. All proposed utilities including stormwater facilities should be shown on the plan drawings. All erosion and sedimentation control facilities should be shown on the mapping. The drawings should contain a complete mapping symbols legend that identifies all existing and proposed features including the soil boundary and a limit of construction. The limit of construction boundary should include the project facility, pipeline areas, stockpile areas and laydown areas. The limit of construction ensures all work is confined to the proposed CCPP Unit 8 project in order to protect all surrounding areas not involved in construction or operation of the proposed project.
5. A detailed and specific construction sequence that addresses all sequence of events from initial mobilization until final stabilization (i.e., vegetation/asphalt) is achieved. Silt fence and haybales, installed on level grade and parallel to the existing contour. If the slope length to the silt fence and haybales exceeds 250 feet, other erosion and sediment control facilities should be used. Silt fence and haybales should be used to trap sediment, and not as runoff conveyance or control facilities.
6. All site-specific Best Management Practices (BMPs) on the erosion and sediment control plan and the stormwater management plan. Provide all proposed vegetative areas on the drawings and soil amendment specifications with regards to excessive drainage, low pH, and high salinity characteristics of the site soil types. The stormwater management plan should provide the entire drainage area along with supporting calculations that include a curve number, time of concentration, and rainfall intensity. These calculations should be provided to demonstrate that the existing stormwater pipes and additional pipes, if required, are of sufficient size to handle the runoff from the proposed project. All final plans approved for adequacy are to be implemented by the contractor.

The CPM should be contacted before any revisions are made to the approved plans.

7. Dewatering facilities, in the event of groundwater contact during excavation activities.
8. Stormwater inlet protection during construction
9. Disturbed areas including stockpiles treated with dust suppressors to reduce fugitive dust pollution
10. The erosion control drawings and narrative, designed and sealed by a professional engineer/erosion control specialist and not by the contractor.

Verification: Thirty days prior to the start of commercial operation, the project owner will submit to the CPM a copy of the Storm Water Pollution Prevention Plan (SWPPP) prepared under requirements of the General Industrial Activity Storm Water Permit. The final plan shall contain all the elements of the draft plan with changes made to address staff comments and the final design of the project.

SOIL & WATER 4: The project owner shall obtain the National Pollutant Discharge Elimination System Permit from the CVRWQCB for the Contra Costa Power Plant prior to operation of CCPP Unit 8. The project owner shall comply with all provisions of the National Pollutant Discharge Elimination System Permit. The project owner shall notify the Energy Commission CPM of any proposed changes to this permit, including any application for permit renewal. Based on the draft NPDES permit conditions, and subject to adoption of the final NPDES permit by the CVRWQCB, the wastewater discharge from Unit 8 could be affected by new, more stringent effluent limitations, primarily as a result of the promulgation of the California Toxics Rule by the USEPA. The San Joaquin River is listed as an impaired water body under Clean Water Act Section 303(d), meaning that it does not meet ambient water quality standards for several constituents. Until the final NPDES permit is issued, it is unknown at this time how this status will affect the combined wastewater discharge. The project will be required to meet all conditions contained in the NPDES permit, and will not operate without the permit in place.

Verification: The project owner will provide a copy of the final National Pollutant Discharge Elimination System Permit from the CVRWQCB to the CEC CPM at least 30 days prior to the start of construction. The project owner shall submit to the Energy Commission CPM in the annual compliance report a copy of the annual monitoring report submitted to the CVRWQCB. The project owner shall notify the Energy Commission CPM in writing of any changes to and/or renewal of this permit at least 30-days prior to the effective date of the change.

SOIL & WATER 5: The project owner shall obtain the Section 10 Rivers and Harbors permit/authorization from the USCOE as part of the Aquatic Filter Barrier installation and operation.

Verification: The project owner will submit copies of the final USCOE Section 10 Rivers and Harbors permit/authorization at least 30 days prior to the start of AFB installation. The project owner shall notify the Energy Commission CPM in writing of any changes to and/or renewal of the authorization/agreements at least 30 days prior to the effective date of the change..

SOIL & WATER 6: The project owner will submit a workplan that discusses in detail the installation of the proposed Aquatic Filter Barrier (AFB), also known as the Gunderboom™. This workplan will identify all principal materials, methods, and equipment that will be used for the installation of the AFB. The workplan will also identify and demonstrate compliance with all LORS associated with the Gunderboom™ project to include Section 10 of the Rivers and Harbors Act.

Verification: The AFB workplan will be submitted to the CEC CPM and all other agencies issuing permits for the project at least 90 days prior to the start of installation activities. The workplan will contain copies of all final draft or final permits required for the installation of the AFB, and the Applicant will adhere to all conditions specified in these permits. The Applicant will provide a summary report of the AFB installation that details and explains any activities, events, or incidents that deviate from those described in the workplan. The summary report will be sent to the CEC CPM, and all other agencies issuing permits for the project within 30-days after completion of the AFB installation project, and prior to the start of plant operations.

SOILS & WATER 7: The project owner will obtain a final "will serve" letter, agreement, or contract signed by an authorized agent of the City of Antioch that indicates that the City has available capacity and will supply the potable water needs of the project. The "will serve" letter, agreement, or contract will contain any conditions, restrictions or requirements related to the supply and/or use of this water by the project. The project owner shall restrict the use of water supplied by the City of Antioch to potable and sanitary uses. Such water shall be specifically prohibited from being used for such purposes as process wash water, turbine inlet cooling make-up, cooling tower makeup, and other non-potable uses. The project will not operate without a potable water supply in place.

Verification: A copy of the final "will serve" letter and/or signed agreement or contract will be provided to the CPM at least 30 days prior to the start of project operation.

SOIL & WATER 8: The project owner shall have an environmental professional (as defined by the American Society for Testing and Materials practice E 1527-97 Standard Practice for Phase I Environmental Site Assessments) available for consultation during excavation activities. If potentially contaminated groundwater is encountered during excavation at the proposed site as evidenced by discoloration, odor, or other signs, prior to any further construction activity at that location, the environmental professional shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the

project owner and the CPM stating the recommended course of action. If, in opinion of the environmental professional, significant remediation may be required, the project owner shall contact representatives of the CVRWQCB for guidance and possible oversight.

Verification: At least 30 days prior to the start of construction the project owner shall provide the CPM with a work plan which details the procedures which will be used to address any contaminated groundwater, should it be encountered during construction. This work plan will identify how the project owner will address any adverse impacts and the mitigation measures to be used to render them less than significant. Should contaminated ground water be encountered, the project owner will notify the CPM in writing within 5 days of any reports filed by the environmental professional, and indicate if any contamination has been determined to be present.

SOIL & WATER 9: The project owner will submit a workplan for a study designed to characterize both the sediment deposition rate and pattern within and in the immediate vicinity of the Sportsmen Yacht Harbor. The workplan will also discuss methods to characterize the rate of deposition of any leaf or other litter associated with the use of trees or other vegetation for visual or other barriers associated with the project, and discuss any landscape maintenance and/or best management capable of reducing impacts to the harbor. All materials, sampling methods, sampling locations, data quality assessment, and use of the data produced shall be discussed in the workplan. The study shall be designed to provide information on pre-project (prior to the installation of the AFB) and post-project (after the installation of the AFB) sedimentation such that any changes related to the project can be quantified. If adequate pre-project data can not be generated due to time constraints/other reasons, an alternative method of determining project-related impacts should be provided.

The workplan will include a scheme for compensating the harbor for any project-related increase in maintenance dredging costs. To the extent possible and practicable, the project owner will consult the harbor owner(s) to obtain any available information on the historical maintenance dredging of the harbor.

Verification: The project owner will provide the workplan to the owners of the yacht harbor for review and comment, and to the Energy Commission CPM for review and approval at least 60 days prior to start of construction of the AFB.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
SOIL AND WATER RESOURCES

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Water Act (33 U.S.C. § 1251), formerly the Federal Water Pollution Control Act of 1972, Section 404	Enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. Requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated by the National Pollutant Discharge Elimination System (NPDES
Section 10 of the River and Harbor Act of 1899	Specifies permit requirements for work on structures over, in, and/or under navigable waters of the United States (33 U.S.C. Section 403). The purpose of this law is to preserve the navigability of the waters of the United States by prohibiting the unauthorized obstruction or alteration of any navigable waters.
STATE	
Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters.
State Water Resources Control Board Policy 75-58	The principal policy that addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976 by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound.
Water Code section 13550	Requires the use of reclaimed water, where available. The use of potable domestic water for nonpotable uses, including industrial uses, is a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available.
LOCAL	
Contra Costa County Construction and Development Code, Chapter 8	Sets forth erosion control procedures for construction grading projects, including projects involving construction or grading near waterways or on lands with slopes exceeding 10 percent.
Contra Costa County Planning and Zoning Code, Section 82-2.014	Minimum requirements are described in Division 914 and include the following: on-site collect and convey requirements; Stormwater disposal restrictions; Runoff quantity determinations; and Minimum capacities for drainage facilities

GEOLOGY AND PALEONTOLOGY

GEOLOGY AND PALEONTOLOGY - GENERAL

The site is located in the San Joaquin River delta, which in turn is located in the Coast Range physiographic province. The site is mantled in artificial fill and deltaic deposits. Portions of the north end of the CCPP facility are within the 100-year flood zone for the San Joaquin River; however, the facility has not experienced any significant flooding during the operation of the existing power plant. No known faults cross the CCPP Unit 8 facility footprint.

Artificial fill at the site is located primarily in the northeastern portion of the proposed facility, however, some fill is scattered throughout the site. The deltaic deposits are recent in age and are made up of silty sands, muck, peat and gravels of the upper Montezuma Formation.

GEOLOGIC HAZARDS

No active faults are known to cross the power plant footprint. The project is located within seismic zone 4 as delineated on Figure 16-2 of the 1998 edition of the CBC. The closest known active fault is the Pittsburg-Kirby Hills fault, which is located 8 kilometers (km) west of the proposed power plant. The estimated peak horizontal ground acceleration for the power plant site is 0.4g based upon a moment magnitude 6.75 earthquake on the Pittsburg-Kirby Hills fault. The potential of surface rupture on a fault at the power plant footprint is considered to be very low, since no faults are known to have ruptured the ground surface of the project site (SA pp. 432-433).

The depth to groundwater at the site varies between approximately 7 feet below existing grade at low tide to approximately 0.4 feet below existing grade at high tide. Portions of the site along the San Joaquin River, are overlain with approximately six feet of fill. Below the fill lies approximately 120 feet of interbedded sands, silts, clay and peat. The combination of saturated soils of varying density and a potential for a moderately high peak horizontal ground acceleration points to a moderate potential for liquefaction at the site. The fill and deltaic soils along the San Joaquin River front are considered to be potentially prone to lateral spreading due to their low unit weight, low shear strength and the unconfined slope fronting the San Joaquin River. Liquefaction and lateral spreading are to be accounted for during the final design of the project's foundation.

The soils at the site are dense enough and are relatively saturated so that hydrocompaction is not considered to be a significant problem. The near surface soils at the project site beneath the fill is represented locally by the Joice muck and the Delhi sand. The Joice muck has a high shrink potential but a low potential for expansion. The Delhi sand soil unit has a negligible potential for expansion (SA p. 433).

Landsliding potential at the power plant site is considered to be low, since the project is located along the banks of the San Joaquin River and there are no significant slopes near the project site. Both the existing site and the proposed expansion are to have a slope of one percent.

GEOLOGIC AND PALEONTOLOGIC RESOURCES

No geological resources have been identified at the power plant location, the natural gas supply line route, or the water supply line route. However, the northern most one third of the power plant footprint is located in mineral resource zone (MRZ) MRZ-1 and the rest of the footprint is zoned MRZ-3 (CDMG 1987). The MRZ-1 designation means that there are no known mineralogical resources while the MRZ-3 designation indicates that there are known mineralogical resources, but the existing available geologic data is not sufficient to assess the significance of the mineralogical resources (SA pp. 433-434).

The proposed expansion site footprint is highly disturbed. During the construction of the original Contra Costa Power plant, on-site soils were disturbed and used as fill throughout portions of the site. Monitoring for paleontological resources during the original construction period did not reveal any significant paleontological resources. The archives search did not indicate that any paleontologic resources were known to be located at the project site. A paleontological resources field survey was conducted at the project site and one mile west of the site on December 14, 1999. No significant paleontological resources were encountered during the field survey (SA p. 434).

SURFACE WATER HYDROLOGY

The northern portion of the power plant footprint is partially located in a 100-year flood zone as it is located in flood zone designation “A2,” with a 100-year flood elevation of seven feet above mean sea level as depicted on the Federal Emergency Management Agency Flood Insurance Rate Map sheet no. 060025-0145 B, panel 145. The balance of the power plant footprint is located in an area designated as “C” (minimal flooding and not within the 100-year flood zone). Minimum grade for the power plant area will be 1 percent and all drainage will be directed away from buildings within the footprint. No surface water hydrology impacts are expected.

CUMULATIVE IMPACTS

The project site is not known to have significant paleontological or geological resources. Therefore, with adoption of Conditions of Certification, the potential for significant adverse cumulative impacts on paleontological resources, geological resources, or surface water hydrology is unlikely.

FINDING

The project would have no adverse impact with respect to geological and paleontological resources and surface water hydrology. The adoption of Conditions of Certification ensures compliance with applicable LORS for geological hazards, geological and paleontological resources and surface water hydrology. In addition, the Conditions of Certification for surface water hydrology, which are located in the **SOILS AND WATER RESOURCES** section of this document ensure minimization of surface water impacts.

CONDITIONS OF CERTIFICATION

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by the 1998 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the Compliance Project Manager (CPM). The functions of the engineering geologist can be performed by the responsible geotechnical engineer, if that person has the appropriate California license.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the Chief Building Official (CBO)) prior to the start of construction, the project owner shall submit to the CPM for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual(s) to the CPM. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4- Engineered Grading Requirement, and Section 3318.1 – Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.

2. Monitor geologic conditions during construction.

3. Prepare the Final Engineering Geology Report.

Protocol: The Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3309.3 Grading Designation, shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy of the site for the intended use as affected by geologic factors.

The Final Engineering Geology Report to be completed after completion of grading, as required by the 1998 CBC Appendix Chapter 33, Section 3318.1, shall contain the following: A final description of the geology of the site and any new information disclosed during grading; and the effect of same on recommendations incorporated in the approved grading plan. The engineering geologist shall submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications. (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3318- Completion of Work, to the CBO, and to the CPM on request.

PAL-1 Prior to the start of any project-related construction activities (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall ensure that the designated paleontological resource specialist approved by the CPM is available for field activities and prepared to implement the conditions of certification.

The designated paleontological resource specialist shall be responsible for implementing all the paleontological conditions of certification and for using qualified personnel to assist in this work.

Protocol: The project owner shall provide the CPM with the name and statement of qualifications for the designated paleontological resource specialist.

The statement of qualifications for the designated paleontological resources specialist shall demonstrate that the specialist meets the following minimum qualifications: a degree in paleontology or geology or paleontological resource management; and at least three years of paleontological resource mitigation and field experience in California, including at least one year's experience leading paleontological resource mitigation and field activities.

The statement of qualifications shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

If the CPM determines that the qualifications of the proposed paleontological resource specialist do not satisfy the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

If the approved, designated paleontological resource specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontological resource specialist.

Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

Verification: At least thirty (30) days prior to the start of construction, the project owner shall submit the name and resume and the availability for its designated paleontological resource specialist, to the CPM, for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontological resource specialist.

At least ten (10) days prior to the termination or release of a designated paleontological resource specialist, the project owner shall obtain CPM approval of the replacement specialist by submitting to the CPM the name and resume of the proposed new designated paleontological resource specialist. Should emergency replacement of the designated specialist become necessary, the project owner shall immediately notify the CPM to discuss the qualifications of its proposed replacement specialist.

PAL-2 Prior to the start of project construction, the designated paleontological resource specialist shall prepare a Paleontological Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontological resources, and submit this plan to the CPM for review and approval. After CPM approval, the project owner's designated paleontological resource specialist shall be available to implement the Monitoring and Mitigation Plan, as needed, throughout project construction.

In addition to the project owner's adoption of the guidelines of the Society of Vertebrate Paleontologists (SVP 1994), the Paleontological Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

A discussion of the sequence of project-related tasks, such as any pre-construction surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation;

Identification of the person(s) expected to assist with each of the tasks identified within this condition for certification, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities;

Where monitoring of project construction activities is deemed necessary, the extent of the areas where monitoring is to occur and a schedule for the monitoring;

An explanation that the designated paleontological resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of a vertebrate fossil find until the significance of the find can be determined;

A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

Inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and

Identification of the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work, discussion of any

requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution.

Verification: At least thirty (30) days prior to the start of construction on the project, the project owner shall provide the CPM with a copy of the Monitoring and Mitigation Plan prepared by the designated paleontological resource specialist for review and approval. If the plan is not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes.

PAL-3 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontological resource specialist shall prepare and conduct CPM-approved training to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontological resources or deposits that may be discovered during project-related ground disturbance.

Protocol: The paleontological training program shall discuss the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if paleontological resources are encountered during project activities. The training program shall be presented by the designated paleontological resource specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least (30) thirty days prior to the start of project construction, the project owner shall submit to the CPM for review, comment, and approval, the proposed employee training program and the set of reporting procedures the workers are to follow if paleontological resources are encountered during project construction.

If the employee training program and set of procedures are not approved, the project owner, the designated paleontological resource specialist, and the CPM shall meet to discuss comments and negotiate necessary changes, before the beginning of construction.

Documentation for training of additional new employees shall be provided in subsequent Monthly Compliance Reports, as appropriate.

PAL-4 The designated paleontological resource specialist or designee shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas where potentially fossil-bearing

sediments have been identified. If the designated paleontological resource specialist determines that full-time monitoring is not necessary in certain portions of the project area or along portions of the linear facility routes, the designated specialist shall notify the project owner.

Verification: The project owner shall include in the Monthly Compliance Reports a summary of paleontological activities conducted by the designated paleontological resource specialist.

PAL-5 The project owner, through the designated paleontological resource specialist, shall ensure recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files copies of signed contracts or agreements with the designated paleontological resource specialist and other qualified research specialists who will ensure the necessary data and fossil recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation for and delivery of all significant paleontological resource materials collected during data recovery and mitigation for the project. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resources Report and shall keep these files available for periodic audit by the CPM.

PAL-6 The project owner shall ensure preparation of a Paleontological Resources Report by the designated paleontological resource specialist. The Paleontological Resources Report shall be completed following completion of the analysis of the recovered fossil materials and related information. The project owner shall submit the paleontological report to the CPM for approval.

Protocol: The report shall include, but not be limited to, a description and inventory list of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the paleontological resource specialist that project impacts to paleontological resources have been mitigated.

Verification: The project owner shall submit a copy of the Paleontological Resources Report to the CPM for review and approval under a cover letter stating that it is a confidential document. The report is to be prepared by the designated paleontological resource specialist within 90 days following completion of the analysis of the recovered fossil materials.

PAL-7 The project owner shall include in the facility closure plan a description regarding the facility closure activity's potential to impact paleontological resources. The conditions for closure will be determined when a facility closure plan is submitted to

the CPM twelve months prior to closure of the facility. If no activities are proposed that would potentially impact paleontological resources, then no mitigation measures for paleontological resource management are required in the facility closure plan.

Protocol: The closure requirements for paleontological resources are to be based upon the Paleontological Resources Report and the proposed grading activities for facility closure.

Verification: The project owner shall include a description of closure activities described above in the facility closure plan.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
GEOLOGY AND PALEONTOLOGY

APPLICABLE LAW	DESCRIPTION
FEDERAL	There are no federal LORS for geological hazards and resources, or grading and erosion control. The CCPP Unit 8 is not located on lands owned by the United States Government.
STATE	
California Building Code (CBC)	A series of standards that are used in investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The CBC supplements the Uniform Building Code's grading and construction ordinances and regulations.
California Environmental Quality Act (CEQA) Guidelines, Appendix G	Provides a checklist of questions to evaluate potential impacts to geologic and paleontologic resources.
LOCAL	There are no local LORs applicable to geologic and paleontologic resources.

ALTERNATIVES

ALTERNATIVES – GENERAL

The Energy Commission staff presented information in its Staff Assessment on the "feasibility of available site and facility alternatives to the applicant's proposal that substantially lessen the significant adverse impacts of the proposal on the environment" (Cal. Code Regs., tit. 20, §1765). Staff also analyzed whether there are any feasible alternative designs or alternative technologies, including the "no project alternative," that may be capable of reducing or avoiding any potential impacts of the proposed project while achieving its major objectives.

"NO PROJECT" ALTERNATIVE

The "no project" alternative assumes that the proposed project is not constructed. In this case, the "no project" alternative would be leaving the plant "as is." Units 1-3 would remain non-operational, units 4 and 5 would serve as synchronous condensers, and units 6 and 7 would remain in operation. No new combined-cycle unit would be added.

In the CCPP Application for Certification (AFC), Mirant presented the "no project" alternative as not consistent with their business objectives. Mirant also argues that the "no project" alternative would conflict with existing state policy objectives to foster a competitive market for generation in which the most efficient technologies would be developed. Without plants like the proposed Unit 8, Mirant argues that California's high demand for electricity must be met through the deployment of older, less efficient power plants which would result in greater environmental impacts.

Staff agrees that both the major electric deregulation legislation, AB 1890 (1996), and, more recently, SB 110 (1999), have emphasized the necessity for siting new power plants which may increase reliability and improve the environmental performance of the current electric industry. Staff agrees that the need for new power plants highlights the benefits that this proposed project offers. Therefore, although the "no project" alternative would avoid mitigable visual impacts, it would not provide the benefits of the project (SA p. 510).

GENERATION TECHNOLOGY ALTERNATIVES

Public Resources Code section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. The forecast that will address this issue is the Commission's California Energy Outlook. Thus, such alternatives are not included in this analysis.

Staff compared various alternative technologies with the proposed project, and examined the principal electricity generation technologies that do not burn fossil fuels such as natural gas. These are geothermal, solar, hydroelectricity, wind, biomass, and waste-to-energy. These alternative technologies have the potential for significant land use, biological and visual

impacts. Consequently, staff does not believe that these technologies present any feasible alternatives to the proposed project (SA pp. 511-12).

Staff also looked at coal and nuclear power generation to provide a thorough analysis of alternative generation technologies. Conventional boiler steam turbine technology using coal as a fuel would be feasible for commercial scale generation. Since coal would have to be imported from outside California, and coal combustion results in a higher level of emissions than that for natural gas burning facilities, Staff concluded that coal option is not superior to the proposed project. California law prohibits new nuclear plants until the scientific and engineering feasibility of disposal of high-level radioactive waste has been demonstrated. Consequently, staff concluded that this alternative technology is not feasible (SA p. 512).

Staff also considered the possibility of a smaller sized alternative, such as a 240-MW gas fired combined cycle project located at the CCPP site. However, because this alternative would reduce the overall benefits of the project without substantially reducing the potentially significant impacts, staff prefers the proposed project to the reduced size alternative.

SITING ALTERNATIVES

In considering site alternatives, the staff had to determine a reasonable geographical area. Since alternatives must consider the underlying objectives of the proposed project, staff confined the geographic area of site alternatives to the Contra Costa County region. Site alternatives outside this region would be inconsistent with the project objectives. While none of the alternative sites evaluated in the FSA was subjected to an in-depth analysis similar to that conducted for the CCPP site, enough information is provided for the decision-makers consistent with CEQA and Energy Commission regulations (SA p. 508).

Staff's analysis of the alternative sites is based on a review of the project objectives and the project's potentially significant impacts identified in this document. Applicant's proposed new location succeeds in reducing the project's impacts while avoiding the need to move transmission lines or underground utilities that the central location would entail. While the central location is feasible, staff finds that the need to move transmission lines and utilities offset the additional reduction in impacts from moving the project from applicant's proposed new location to the central location. Implementation of staff's recommended conditions of certification will reduce all impacts of the project to less than significant levels. Staff does not prefer the central site to applicant's proposed new location.

Staff found that developing a similar project at an identified alternative site away from the existing CCPP site would not substantially reduce or avoid the potentially significant impacts of the project. Furthermore, such sites would add to costs by making less efficient use of the existing site and infrastructure, which is one of the major objectives of the project. Also, use of the alternative sites may result in significant impacts in other areas, such as biological resources and land use. For these reasons, staff finds locating the project at the existing CCPP site to be preferred to other sites (SA p. 518).

FINDINGS

Energy efficiency measures and alternative technologies (geothermal, solar, wind, and hydroelectric) do not present feasible alternatives to the proposed project. The “no project” alternative is not preferable to the proposed project because this alternative would eliminate the benefits of the project. Applicant’s proposed new location succeeds in reducing the project’s potential visual and noise impacts to neighboring properties while avoiding the need to move transmission lines or underground utilities that the central location would entail. Implementation of Conditions of Certification will reduce all potential impacts of the project to less than significant levels. Thus, the central site is not preferable to applicant’s proposed new location.

TRANSMISSION LINE SAFETY AND NUISANCE

TRANSMISSION LINE SAFETY AND NUISANCE – GENERAL

Since the project site is not open to the general public, the only exposure of potential significance would be the short-term exposure of utility and non-utility workers at the site. The proposed transmission line is a single-circuit, 2,000-foot 230 kV overhead line to be located entirely within CCPP property. The conductors will be carried on structures, providing a minimum ground clearance of 32 feet depending on closeness to the exiting on-site lines. The applicant (Southern 2000a, AFC pages 2-48 through 2-53) has provided the details of the pole design. Since the line is proposed for PG&E's service area, its conductors will, in keeping with present CPUC requirements, be arranged on their support structures according to PG&E's field reduction guidelines (SA p. 149).

As noted in the LORS section, GO-95 and Title 8, California Code of Regulations Section 2700 et seq. provide the minimum regulatory requirements necessary to prevent the direct or indirect contact previously discussed in connection with hazardous shocks and aviation hazards. Of secondary concern are the field-related impacts manifesting as nuisance shocks, radio noise, communications interference and human field exposure. The relative magnitude of such impacts would be reflected in the field strengths characteristic of a given line design. Since the field-reducing measures can affect line operations, the extent of their implementation, together with related field strengths, will vary according to environmental and other local conditions bearing on line safety, efficiency, reliability, and maintainability. They will, therefore, vary from one service area to the other according to prevailing conditions. Each project proponent will apply such measures to the extent appropriate for the geographic area involved. The potential for all these impacts is assessed separately for each proposed project (SA pp. 149-150).

AVIATION SAFETY

There are no major airports in the immediate vicinity of the proposed Unit 8 project. Since (a) the proposed lines will be designed according to PG&E guidelines relative to aviation and the other safety hazards and (b) the system's PG&E lines have not posed a significant hazard to area aviation, staff does not expect these proposed lines to pose a significant hazard to area aviation. The applicant intends to appropriately inform the Federal Aviation Administration with respect to the proposed line (SA p. 150).

INTERFERENCE WITH RADIO-FREQUENCY COMMUNICATION

The applicant's use of a low-corona conductor design, as PG&E requires, would minimize the potential for such interference (which is usually of concern only for lines of 345 kV and above). No significant communications interference is expected, as is the case with the nearby 230 kV PG&E lines designed according to related PG&E guidelines. The previously noted provisions of the related FCC regulations require each project owner to ensure mitigation of any such

interference to the satisfaction of the affected individual. Condition of Certification **TLSN-3** ensures such mitigation (SA p. 150).

AUDIBLE NOISE

As with radio noise, the low-corona conductor proposed for this Unit 8-related line (and currently used in the area's 230 kV PG&E lines) will minimize the potential for audible noise. This means, as reflected in the applicant's analysis (Southern 2000a, AFC page 2-52), that the proposed line will not add significantly to background noise levels. For an assessment of the noise impacts from all phases of the proposed power plant and related facilities, please refer to staff's analysis in the **NOISE** section in the FSA.

FIRE HAZARDS

Since the proposed line will be located entirely within the CCPP site and operated in keeping with PG&E's fire prevention guidelines, fire hazards during operations are not expected.

HAZARDOUS SHOCKS

As with all PG&E transmission lines, the proposed connection line will be designed according to GO-95 requirements against hazardous shocks from direct or indirect human contact with the overhead energized line. Therefore, shock hazard on site are not expected.

NUISANCE SHOCKS

Since the proposed line will be grounded according to PG&E requirements, significant nuisance shock is not expected along its on-site route. Ensuring GO-95-required ground clearance, as with all PG&E lines, will minimize the potential for the electrical charging for which such grounding would be necessary (SA p. 151).

ELECTRIC AND MAGNETIC FIELD EXPOSURE

The proposed lines will be designed in compliance with PG&E's EMF reduction requirements arising from CPUC Decision 93-11-013 of 1989. The applicant (Southern 2000a, AFC pages 2-51 and 2-52) calculated the maximum strengths during operations as 2.97 kV/m directly below the line diminishing to 1.49 kV/m at the CCPP property boundary and 0.04 kV/m at the nearest residence 250 feet from the line. The maximum magnetic field level underneath the proposed line was calculated as 193.0 mG directly underneath, 135.0 mG at the property boundary and 5.2 mG at the nearest residence 250 feet from the line. These field strengths are similar to PG&E lines of the same voltage and current-carrying capacity. Staff has established the appropriateness of the applicant's calculation approach with respect to parameters bearing on field strength and dissipation, and exposure levels. These field strengths are less at the property boundary than at the edges of rights-of-way for similar fields in states with regulatory limits, which range from 200 mG in New York to 150 mG in Florida (SA p. 151).

CUMULATIVE IMPACTS

The strengths of electric and magnetic fields from the proposed line were calculated (and will be required to be measured) to factor the interactive effects of all area lines. Therefore, these calculated field strength values reflect: 1) the cumulative exposure of an individual to fields from the nearby lines as used in connection with the other CCPP Units; and 2) implementation of the field-reducing measures incorporated into PG&E's field designs as currently required by the CPUC.

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to transmission safety.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission line according to the requirements of GO-95, GO-52, Title 8 California Code of Regulations Sections 2700-2974, and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013. The line shall also be grounded according to current PG&E practices.

Verification: Thirty days before start of transmission line construction, the project owner shall submit to the Energy Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the transmission line will be constructed according the requirements of GO-95, GO-50, Title 8, California Code of Regulations Sections 2700-2974, and PG&E's EMF reduction guidelines arising from CPUC Decision 93-11-013. The letter shall also affirm that the line will be grounded according to current PG&E practices.

TLSN-2 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields along the 3,809-foot route, before and after it is energized. Measurements should be made at the same point of maximum levels, the CCPP property line, and the nearest residence, for which the applicant presented field strength values.

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements. These measurements shall be completed within 6 months of the start of operations.

TLSN-3 The project owner shall ensure that every reasonable effort is made to identify and correct on a case-specific basis any complaints of interference with radio or television signals or radio communication from operation of the proposed line. The project owner shall maintain a record of such complaints and related corrective action for a period of five years.

Verification: Verification All reports of line-related radio interference and related mitigation action shall be summarized and provided each year for the first five years of operation to the CEC Compliance Project Manager.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
TRANSMISSION LINE SAFETY AND NUISANCE

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Title 14, Part 77 of the Federal Code of Regulations (CFR), "Objects Affecting the Navigation Space"	Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards.
FAA Advisory Circular (AC) No. 70/460-2H	This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA.
FAA AC No. 70/460-1G, "Obstruction Marking and Lighting"	This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25	Provisions of these regulations prohibit operation of any devices producing force fields that interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy.
National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines	Provisions in this part of the code specify the national safe operating clearances applicable in areas where the line might be accessible to the public.
STATE	
General Order 52 (GO-52), California Public Utilities Commission (CPUC)	Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference.
General Order 95 (GO-95), CPUC, "Rules for Overhead Electric Line Construction"	This order specifies tree-trimming criteria to minimize the potential for power line-related fires.
Title 14, California Code of Regulations. Section 1250, "Fire Prevention Standards for Electric Utilities"	This code specifies utility-related measures for fire prevention.
GO-95, CPUC, "Rules for Overhead Line Construction"	These rules specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection.
Title 8, California Code of Regulations, sections 2700-2974 "High Voltage Electric Safety Orders"	These safety orders establish essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment.
LOCAL	There are no applicable local LORS.

FACILITY DESIGN

FACILITY DESIGN – GENERAL

Facility Design encompasses the civil, structural, mechanical and electrical engineering design of the project. The purpose of the Facility Design analysis is to:

1. verify that the laws, ordinances, regulations and standards (LORS) applicable to design and construction of the project have been identified;

2. verify that the project and ancillary facilities have been described in sufficient detail, including proposed design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable LORS, and in a manner that protects environmental quality and assures public health and safety;

3. determine whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety or environmental protection; and

4. describe the design review and construction inspection process and establish Conditions of Certification that will be used to monitor and ensure compliance with the intent of the LORS and any special design requirements.

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as a natural gas pipeline and electric transmission line. The applicant proposes to use accepted industry standards, design practices, and construction methods in preparing and developing the site. The applicant's proposed methods follow industry standard practices. The project will likely comply with all applicable site preparation LORS, and Conditions of Certification included below to ensure compliance (SA p. 447).

MAJOR STRUCTURES, SYSTEMS, AND EQUIPMENT

Major structures, systems, and equipment are defined as those structures and associated components or equipment that are necessary for power production that: 1) are costly to repair or replace or require a long lead time to repair or replace; or 2) that are used for the storage, containment, or handling of hazardous or toxic materials. Major structures and equipment are listed in the Conditions of Certification (**GEN-2** below). In addition, the AFC contains a list of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable LORS, and which staff believes are essential to ensuring that the project is designed in a manner that protects the environment and public health and safety. In order to ensure that structures are analyzed using the appropriate lateral force procedure, Condition of Certification **STRUC-1** is included, which in part requires review and approval by the County Building Official (CBO) of the project owner's proposed lateral force procedures prior to the start of construction (SA p. 447).

CIVIL/STRUCTURAL FEATURES

The applicant proposes, and staff concurs that small, lightly loaded structures, not subject to vibratory loading be supported on shallow footings or mat foundations on properly compacted fill or undisturbed native soils. Foundation depth should extend to at least 12 inches below lowest adjacent grade. If any portion of the foundation bears on bedrock, the entire foundation should be deepened to bear on bedrock. Large, heavily loaded structures, and structures subjected to vibratory loading, should be constructed on deepened foundations that bear on bedrock. Such foundations may include deepened footing or concrete reinforced pier and grade beams. The powerplant and related facilities shall be designed to meet the seismic requirements of the latest edition of the California Building Code (SA p. 449).

MECHANICAL SYSTEMS

The application (Southern 2000a, Appendix B5) lists and describes the mechanical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely assure the project's mechanical systems are designed to the appropriate codes and standards. Conditions of Certification (**MECH-1** through **MECH-4**) would help monitor compliance with this requirement (SA p. 449-450).

ELECTRICAL DESIGN FEATURES

Major electrical features of the project other than transmission include generators, power control wiring, protective relaying, grounding system, cathodic protection system and site lighting (Southern 2000a, Appendix B3). The AFC (Southern 2000a, Appendix B3) lists and describes the electrical codes, standards and design criteria that will be employed in project design documents, procurement specifications and contracts. Design work will be performed in accordance with the appropriate LORS. This list indicates that the applicant is aware of the codes, standards, and design criteria appropriate for such a project. This approach will likely assure the project's electrical systems are designed to the appropriate codes and standards. Staff concludes that the applicant can design the electrical systems in accordance with all LORS and in a manner which protects the environment and public health and safety by complying with the applicable LORS and electrical design criteria (Southern 2000a, Appendix B3). Condition of Certification (**ELEC-1** and **ELEC-2**, below) would help monitor this compliance (SA p. 450).

PROJECT QUALITY CONTROL

The AFC (Southern 2000a, § 2.4.6) describes a Project Quality Program that will be used on the project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed, and tested in accordance with the technical codes and standards appropriate for a powerplant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of this Quality Assurance/Quality

Control (QA/QC) program will ensure that the project is designed, procured, fabricated and installed in accordance with LORS (SA pp. 450-451).

COMPLIANCE MONITORING

Conditions of Certification address the roles, responsibilities and qualifications of CCPP Unit 8's engineers responsible for the design and construction of the project (Conditions of Certification **GEN-1** through **GEN-8**).

FACILITY CLOSURE

Facility closure was evaluated under three scenarios; Planned Closure, Unexpected Temporary Closure and Unexpected Permanent Closure. If the facility is closed on an unexpected temporary basis, the applicant shall secure the site in order to protect public health and safety. If an unexpected temporary closure becomes permanent, the applicant shall follow the procedures outlined for "Planned Closure." Condition of Certification (**GEN-9**) ensures that the required measures are included in the Facility Closure Plan.

FINDING

With the adoption and implementation of the Conditions of Certification, below, the project conforms to applicable laws related to facility design.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 1998 California Building Code (CBC)[1] and all other applicable LORS in effect at the time initial design plans are submitted to the CBO for review and approval. The CBC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

Protocol: In the event that the CCPP Unit 8 is submitted to the CBO when a successor to the 1998 CBC is in effect, the 1998 CBC provisions identified herein shall be replaced with the applicable successor provisions. *Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern.* Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner

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

shall submit to the California Energy Commission Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [1998 CBC, Section 109 – Certificate of Occupancy.]

GEN-2 The project owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List, and a Master Specifications List. The schedule shall contain a description of, and a list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment in **Table 1: Major Equipment List** below). To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

Table 1: Major Equipment List

Equipment/System	**Quantity Plant**	**Size/ Capacity***	**Remarks**
Combustion Turbine (CT) Generator	2	170 MW each	Dry Low NO_X combustion control. Either train can operate independently
Steam Turbine (ST)	1	200 MW	Single shaft HPT, IPT and LPT (2x1 configuration
Generators	3		Included with CT and ST
STG Main Transformer	1		1 @ 100%
CT Inlet Air Filter	2	3,600,000 lb/hr	
Inlet Air Cooling	2		Evaporative/Refrigeration/Fogging
Air Compressor	3		3 @ 50%
Fuel Gas Filter – Separator	2	150,000 lb/hr	
Heat Recovery Steam Generator (HRSG)	2	550,000 lb/hr	HP, IP, LP with reheat
HRSG Stack	2		18'-0" dia.x195' high
Condensate Pump	2		2 @ 100%
Ammonia Injection Skid	2		Two blowers per HRSG
Ammonia Storage Tank	1	20,000 gal	Double walled
HP/IP HRSG feedwater pumps	2	1,700 gpm	HP with interstage bleed
Make-up Water Storage Tank	1	2,300,000 gal	Includes firewater storage
Demineralized Water Pumps	2	170 gpm	
Demineralized Water Treatment Package	1	350 gpm	
Demineralized Water Storage Tank	1	500,000 gal	
Condensate Pump	3	1300 gpm	1 spare per condenser
Circulating Water Pumps	3	60,000 gpm	
Cooling Tower Bank	1		Ten-celled mechanical draft design
Fire Water Pump Skid	1	3,000 gpm	
Auxiliary Cooling Water Pumps	2	750 gpm	
Plant Air Compressors & Dryers	2	750 cfm	
Step-up Transformers	2	18/20 kV	To electrical grid

***All capacities and sizes are approximate and may change during project final design.**

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

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

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

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities).]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

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

The RE shall:

1. Monitor construction progress to ensure compliance with LORS;

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

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

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

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

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

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

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

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

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

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of powerplant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.]. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

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

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

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

Protocols:

A. The civil engineer shall:

1. Design, or be responsible for designing, stamping, and signing, all plans, calculations, and specifications for proposed site work, civil works, and related facilities. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and

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

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

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

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

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

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

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

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

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

C. The design engineer shall:

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

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

3. Monitor construction progress to ensure compliance with LORS;

4. Evaluate and recommend necessary changes in design; and

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

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

E. The electrical engineer shall:

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

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

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

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 1998 CBC, Chapter 17, Section 1701, Special Inspections, Section, 1701.5 Type of Work (requiring special inspection), and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

Protocol: The special inspector shall:

1. Be a qualified and certified person who shall demonstrate competence, to the satisfaction of the CBO, and also that they meet the requirements of Section 1701 of the 1998 CBC, for inspection of the particular type of construction requiring special or continuous inspection;

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

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

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

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

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

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

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

Verification: The project owner shall submit monthly construction progress reports to the CBO and CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [1998 CBC, Section 108, Inspections.]

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

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

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

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

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

3. Activities necessary to restore the site if the CCPP Unit 8 decommissioning plan requires removal of all equipment and appurtenant facilities; and

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

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

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

1. Design of the proposed drainage structures and the grading plan;

2. An erosion and sedimentation control plan;

3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and

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

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

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

Verification: The project owner shall notify the CPM, within five days, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions.

Within five days of the CBO's approval, the project owner shall provide to the CPM a copy of the CBO's approval to resume earthwork and construction in the affected areas.

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

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

Verification: Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a Non-Conformance Report (NCR), and the proposed corrective action. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following Monthly Compliance Report.

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

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

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for:

1. Major project structures;

2. Major foundations, equipment supports and anchorage;

3. Large field fabricated tanks; and

4. Turbine/generator pedestal.

In addition, the project owner shall, prior to the start of any increment of construction, get approval from the CBO of the lateral force procedures proposed for project structures to comply with the lateral force provisions of the CBC.

Protocol: The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications [1998 CBC, Section 108.4, Approval Required];

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days (or a lesser number of days mutually agreed to by the project owner and the CBO), prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [1998 CBC, Section 106.4.2, Retention of plans and Section 106.3.2, Submittal documents.]; and

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

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

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

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

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

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

2. Concrete pour sign-off sheets;

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

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results), welder qualifications, certifications, and qualified procedures; and

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

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

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

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

Verification: On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned

documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the Monthly Compliance Report, when the CBO has approved the revised plans.

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

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

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

MECH-1 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter less than two and one-half inches). The submittal shall also include the applicable QA/QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction [1998 CBC, Section 106.3.2, Submittal documents, Section 108.3, Inspection Requests.]

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

1. The proposed final design plans, specifications and calculations conform with all of the piping requirements set forth in the Energy Commission's Decision; and
2. All of the other piping systems, except domestic water, refrigeration systems and small bore piping have been designed, fabricated and installed in accordance with all applicable ordinances, regulations, laws and industry standards, including, as applicable:

1. American National Standards Institute (ANSI) B31.1 (Power Piping Code);

2. ANSI B31.2 (Fuel Gas Piping Code);
3. ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
4. ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
5. Specific City/County code.

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

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

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

The project owner shall:

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

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

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

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

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

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

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

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

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

Protocol: The project owner shall design, fabricate and install:

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

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

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

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

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

ELEC-1 For the 480 volts and higher systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS [1998 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **TRANSMISSION SYSTEM ENGINEERING** Section of this document.

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

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and

3. The number of electrical drawings approved, submitted for approval, and still to be submitted.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for electrical equipment and systems 480 volts and greater, including a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

ELEC-2 The project owner shall submit to the CBO the required number of copies of items A and B for review and approval and one copy of item C [CBC 1998, Section 106.3.2, Submittal documents.] All transmission facilities (lines, switchyards, switching stations, and substations) are handled in Conditions of Certification TSE-1, TSE-2 and TSE-3 in the **Transmission System Engineering** Section of this document.

Protocols:

A. Final plant design plans to include:

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

B. Final plant calculations to establish:

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical equipment installation, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations, for electrical equipment and systems 480 volts and greater enumerated above, including a copy of the signed and stamped statement from the responsible electrical engineer certifying compliance with the applicable LORS. The project owner shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
FACILTY DESIGN

APPLICABLE LAW	DESCRIPTION
Title 24, California Code of Regulations, which adopts the current edition of the California Building Code (CBC) as minimum legal building standards; the 1998 CBC for design of structures; American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code; and National Electrical Manufacturers Association (NEMA) standards	The applicable LORS for each engineering discipline, civil, structural, mechanical and electrical, are included in the application as part of the engineering appendices, Appendix B, Applicable LORS for construction and design (Southern 2000a).

POWER PLANT EFFICIENCY

POWER PLANT EFFICIENCY - GENERAL

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

1. Adverse effects on local and regional energy supplies and energy resources;
2. A requirement for additional energy supply capacity;
3. Noncompliance with existing energy standards; or
4. The wasteful, inefficient and unnecessary consumption of fuel or energy.

ENERGY REQUIREMENTS AND ENERGY USE EFFICIENCY

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. The CCPP Unit 8 will burn natural gas at a nominal rate up to 95.3 billion Btu per day LHV (lower heating value) (Southern 2000a, AFC § 2.2.5.2). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies. Under expected project conditions, electricity will be generated at a full load efficiency of approximately 54.1 percent LHV (Southern 2000a, AFC § 1.4); compared to the average fuel efficiency of a typical utility company baseload power plant at approximately 35 percent LHV. Therefore, the proposed project is expected to be efficient in use of energy.

ENERGY SUPPLIES AND RESOURCES

The project will burn natural gas from the existing Pacific Gas and Electric Company (PG&E) backbone Line 400 that passes through the Contra Costa Power Plant site on its way from Canada to the Antioch terminal. The gas supply infrastructure is extensive, offering access to vast reserves of gas from the Rocky Mountains, Canada and the Southwest. This source represents far more gas than would be required for a project this size. Energy Commission predictions are that natural gas supplies will be adequate for many years into the future. It is therefore highly unlikely that the CCPP Unit 8 could pose a substantial increase in demand for natural gas in California. Should the supply of gas from the north be interrupted, the project could take gas from the Antioch terminal, which has other supply avenues. There is thus no real likelihood that the CCPP Unit 8 will require the development of additional energy supply capacity (SA p. 483).

ALTERNATIVES

The project configuration (combined cycle) and generating equipment (F-class gas turbines) chosen appear to represent the most efficient feasible combination to satisfy the project objectives. There are no alternatives that could significantly reduce energy consumption.

CUMULATIVE IMPACTS

There are several nearby power plant projects that hold the potential for cumulative energy consumption impacts when aggregated with the CCPP Unit 8. The existing Contra Costa Power Plant Units 6 and 7, the existing Pittsburg Power Plant, and the Los Medanos Energy Center (98-AFC-1) and Delta Energy Center (98-AFC-3) projects, now under construction, are in addition to several much smaller cogeneration power plants at nearby industrial facilities. However, the supply of natural gas to this area is sufficient. Construction and operation of the CCPP Unit 8 are not expected to bring about indirect impacts, in the form of additional fuel consumption, that would not have occurred but for the CCPP Unit 8. California's electric power will be generated by those power plants that bid most successfully to sell their output to the California Power Exchange. Since other equally efficient power plants are envisioned to compete against the CCPP Unit 8, no indirect impacts on fuel consumption are likely.

FINDING

The CCPP Unit 8 would present no significant adverse impacts upon energy resources, or result in cumulative impacts.

CONDITIONS OF CERTIFICATION

No Conditions of Certification are proposed.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
POWER PLANT EFFICIENCY

APPLICABLE LAW	DESCRIPTION
FEDERAL	No federal laws apply to the efficiency of this project.
STATE	
CEQA Guidelines, (Cal. Code Regs., tit. 14, § 15126.4(a)(1))	State that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy". Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy.
LOCAL	No local or county ordinances apply to power plant efficiency.

POWER PLANT RELIABILITY

POWER PLANT RELIABILITY - GENERAL

A reliable power plant is one that is available when called upon to operate. The project is expected to operate at an annual average capacity factor from 75 percent to 85 percent, and an annual availability from 92 to 95 percent (Southern 2000a, AFC §§ 1.4, 2.4.1). Throughout its intended life, the CCPP Unit 8 will be expected to perform reliably in baseload, load following and peaking duty. Power plant systems must be able to operate for extended periods (sometimes months on end) without shutting down for maintenance or repairs. Achieving this reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability, fuel and water availability, and resistance to natural hazards. If these factors compare favorably to industry norms, staff can conclude that the CCPP Unit 8 will be as reliable as other power plants on the electric system, and will therefore not degrade system reliability (SA pp. 474-475).

EQUIPMENT AVAILABILITY

Equipment availability will be ensured by use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems Conditions of Certification in **FACILITY DESIGN** section of the FSA ensure implementation of a QA/QC program.

PLANT MAINTAINABILTY

Mirant plans to provide appropriate redundancy of function for the combined cycle portion of the project (Southern 2000a, AFC §§ 2.2.4.3, 2.2.7.1, 2.2.12.1, 2.4.3; Table 2-17). The fact that the project consists of two trains of gas turbine generators/heat recovery steam generators (HRSGs) provides inherent reliability. In addition, the cooling system is designed to allow steam bypass from both HRSGs, allowing either or both gas turbine generators to operate even if the steam turbine is out of service. Further, the plant's distributed control system (DCS) will be built with typical redundancy. Equipment redundancy will be sufficient for a project such as this. Mirant proposes to expand the plant maintenance program of the existing Contra Costa Power Plant units, a program typical of the industry (Southern 2000a, AFC §§ 1.1, 2.4.1, 2.4.6.2). Staff expects that the project will thus be adequately maintained to ensure acceptable reliability (SA pp. 475-476).

FUEL AND WATER AVAILABLITY

The natural gas system, which connects gas fields in Canada to the nearby Antioch terminal, offers access to far more gas than the plant would require (Southern 2000a, AFC §§ 1.7, 2.2.5.1, 2.2.5.2, 2.4.4; Table 2-3). Staff agrees with the applicant's prediction that there will be adequate natural gas supply and pipeline capacity to meet the project's needs. The CCPP Unit 8 will obtain water for cooling and other plant uses from existing Contra Costa Power Plant systems (Southern 2000a, AFC §§ 1.3, 1.7, 2.1, 2.2.6, 2.2.6.1, 2.2.6.2, 2.2.6.4, 2.4.5, 7.0). Makeup water for the evaporative cooling towers will be drawn from the existing Units 6

and 7 supply that takes water from the San Joaquin River. Other plant water uses, such as steam cycle makeup water and potable water, are also supplied by river water; when river water quality is poor, the unit will draw process water from a demineralized water storage tank. Staff believes this source yields sufficient likelihood of a reliable supply of water (SA p. 476).

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

All structures below nine feet above msl will be designed to accommodate flooding, in accordance with the Contra Costa County Building Code to provide an adequate response to the threat of flooding. In addition, compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking, compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Conditions of Certification in the **FACILITY DESIGN** section of the FSA help ensure seismic safety. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events (SA p. 477).

COMPARISON WITH EXISTING FACILITIES

The gas turbines that will be employed in the project have been on the market for several years, and can be expected to exhibit typically high availability. The applicant's prediction of an annual availability from 92 to 95 percent (Southern 2000a, AFC §§ 1.4, 2.4.1) appears reasonable compared to the NERC figure for similar plants throughout North America (see above). In fact, these new, large machines can well be expected to outperform the fleet of various (mostly older and smaller) gas turbines that make up the NERC statistics. Further, since the plant will consist of two parallel gas turbine generating trains, maintenance can be scheduled during those times of year when the full plant output is not required to meet market demand, typical of industry standard maintenance procedures. The applicant's estimate of plant availability therefore appears realistic. The stated procedures for assuring design, procurement and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant.

FINDING

The plant would provide an adequate level of reliability.

CONDITIONS OF CERTIFICATION

No Conditions of Certification are proposed.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
POWER PLANT RELIABILITY

APPLICABLE LAW	DESCRIPTION
None	There are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation

TRANSMISSION SYSTEM ENGINEERING

TRANSMISSION SYSTEM ENGINEERING – GENERAL

TRANSMISSION SYSTEM ENGINEERING Figure 1 in the FSA (SA p. 504) shows an overall one-line diagram submitted by the applicant for the CCPP Unit 8. The CCPP Unit 8 provides an additional nominal electrical output of 530 MW, with a maximum output of 590 MW to the PG&E 230 kV grid. The Detailed Facilities Study (DFS) submitted by Pacific Gas and Electric Company modeled the output at the maximum 590 MW for purposes of contingency and stability analysis. The applicant proposes operations at partial load be accomplished by using a "two on one" approach. Under light loading scenarios, output may be reduced by turning down output from one or both combustion turbine generators (CTGs), shutting down the steam turbine generator (STG), and/or shutting down one of the combustion turbine generators. Under these conditions, the minimum output would be approximately 190 MW. Added to the existing power plant, Unit 8 brings the total output of the CCPP to approximately 1200 MW. Unit 8 would consist of two CTGs fueled by natural gas and air, and an STG driven by exhaust from the CTGs. The output of each generator would be connected to the high voltage system through a dedicated 18/230 kV step-up transformer. The applicant plans to construct approximately 2,500 feet of overhead 230 kV line to interconnect the plant output with the existing PG&E switchyard. The switchyard is located within the boundaries of the plant and connects to the electrical grid through a number of 230 kV lines.

CONCLUSIONS

The DFS indicates that there are no major adverse transmission impacts due to interconnection of the Contra Costa Power Project. Minor overloads identified through single contingency analysis may be mitigated with proposed or completed transmission projects, or will require generation curtailment. In cases where there are adverse impacts due to multiple-element contingency, the applicant is not required to be responsible for pertinent transmission upgrades, but may be required to be responsible for the costs of operating procedures and/or special protection schemes, such as RAS, to mitigate the overloads on the transmission facilities. At such a time that these multiple contingency cases warrant attention, the Cal-ISO and the Participating Transmission Owner (PTO), PG&E, and the Project Owner, which may or may not be the applicant, would provide the necessary mitigation scheme to ensure system integrity. The Cal-ISO has requested information from the Project Owner to determine the operational constraints that would be present during multiple contingencies.

With regards to the identified stability problems associated with the bus section outages at the Contra Costa switchyard, additional studies were requested by the Cal-ISO to determine whether it is an existing problem, or a new one caused by the addition of the CCPP Unit 8 generating project. The study results will help identify whether the PTO or the project owner is responsible for the cost of the proposed mitigation measures.

Overall, the staff concludes that the CCPP Unit 8 has no adverse transmission impacts and could be approved with the necessary accommodations to ensure adequate design and installation of the facilities proposed. Final approval was granted by the Cal-ISO to connect

the proposed CCPP to the ISO grid with Cal-ISO conditions as stated in the Cal-ISO's letter dated April 5, 2001. The Condition of Certification, **TSE-3** provides for Commission review of this information (SA pp. 495-496).

FINDING

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to transmission system engineering.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to requirements listed below. The substitution of Compliance Project Manager (CPM) approved "equivalent" equipment and equivalent switchyard configurations are acceptable.

1. The power plant switchyard, outlet line and termination shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95; Title 8, California Code of Regulations; Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; National Electric Code (NEC); and related Industry Standards.

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

3. The project interconnection will be through a single 230 kV tie and existing breaker in the switchyard. The tie will use conductors similar to double-bundled 1431 AAC.

4. Termination facilities at the interconnection shall comply with applicable Cal-ISO and PG&E interconnection standards (PG&E Interconnection Handbook and CPUC Rule 21).

5. As part of the DFS, the Project Owner shall determine the impact on DWR's Banks Pumping Plant, South Bay, Barker Slough and Cordelia Pumping Plant Facilities and insure that impacts to DWR are fully mitigated. Mitigation shall be coordinated with the Cal-ISO.

Verification: At least 30 days prior to start of construction of transmission facilities, the Project Owner shall submit for approval to the CPM:

1. Design drawings, specifications and calculations conforming with CPUC General Order 95 and related industry standards, where applicable, for the poles/towers, foundations, anchor bolts, conductors, grounding systems and major switchyard equipment.

2. For each element of the transmission facilities as identified above, the submittal package to the CPM shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions" and a statement by the registered engineer in responsible charge (signed and sealed) that the transmission element(s) will conform with CPUC General Order 95; Title 8, California Code of Regulations; Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; the NEC; PG&E Interconnection Handbook; CPUC Rule 21 and related industry standards.

3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements 1 through 5 above. Substitution of equipment and substation configurations shall be identified and justified by the project owner for CPM approval.

4. A signed letter from DWR stating that there is no impact or that mitigation is acceptable.

TSE-2 The project owner shall inform the CPM of any impending changes, which may not conform to the requirements 1 through 5 of TSE-1, and have not received CPM approval, and shall request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment; transmission facilities or switchyard configurations shall not begin without prior written approval of the changes by the CPM.

Verification: At least 60 days prior to construction of transmission facilities, the project owner shall inform the CPM of any impending changes which may not conform to requirements of TSE-1 and request approval to implement such changes.

TSE-3 The Project Owner shall provide an executed Generator Special Facilities Agreement (GSFA) for the transmission interconnection with PG&E and the additional information requested by the Cal-ISO in the October 2, 2000 letter to Southern Company. The GSFA shall be approved by and coordinated with the Cal-ISO.

Verification: At least 30 days prior to first synchronization of the project, the project owner shall transmit to the CPM the documents specified in TSE-3.

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 CPUC General Order 95; Title 8, California Code of Regulations; Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; the NEC; PG&E Interconnection Handbook; CPUC Rule 21 and related industry standards. In case of non-conformance, the project owner shall

inform the CPM in writing within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

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

1. "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC General Order 95; Title 8, California Code of Regulations; Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; the NEC; PG&E Interconnection Handbook; CPUC Rule 21 and related industry standards, and these conditions shall be concurrently provided.
2. 2. An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge.
3. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in responsible charge.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
TRANSMISSION SYSTEM ENGINEERING

APPLICABLE LAW	DESCRIPTION
FEDERAL	There are no applicable Federal LORS associated with transmission system engineering.
STATE	
CPUC General Order 95, Rules for Overhead Electric Line Construction.	Formulates uniform requirements for construction of overhead lines
CPUC Rule 21	Provides standards for the reliable connection of parallel generating stations connected to participating transmission owners.
Western Systems Coordinating Council (WSCC)	Provides the performance standards used in assessing reliability of the interconnected system.
North American Electric Reliability Council (NERC)	Provides policies, standards, principles and guides to assure the adequacy and security of the electric transmission system.
Cal-ISO Scheduling Protocols and Dispatch Protocols	Require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria.
Cal-ISO Participating Generator Agreement	Consists of detailed explanations of the requirements in the Cal-ISO Tariff pertaining to the paralleled generating unit.
Title 8, Calif. Code of Regulations; Art. 35, 36 & 37 of the "High Voltage Electric Safety Orders"	Provides for work space and guarding, work procedures and operating procedures for high voltage electrical equipment.
National Electric Code	Provides for the practical safe guarding of persons and property from hazards arising from the use of electricity (low to medium voltage).
LOCAL	There are no applicable Local LORS associated with transmission system engineering.

WORKER SAFETY AND FIRE PROTECTION

WORKER SAFETY AND FIRE PROTECTION - GENERAL

The proposed project will be situated wholly within the confines of an existing and active power generating facility and as such, fire protection systems and worker safety programs already exist and are in place.

WORKER SAFETY

Industrial environments are potentially dangerous, during both construction and operation of facilities. Workers at the proposed CCPP Unit 8 will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important for the Contra Costa Power Plant Unit 8 to have well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards and protect workers. If the facility complies with all LORS, workers will be adequately protected from health and safety hazards (SA pp. 132-133).

FIRE HAZARDS

During construction and operation of the proposed Contra Costa Power Plant Project there is the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, natural gas or flammable liquids, explosions, and over-heated equipment, may cause small fires. Major structural fires may develop from uncontrolled fires or be caused by large explosions of natural gas or other flammable gasses or liquids. Compliance with all LORS will be adequate to assure protection from all fire hazards (SA p. 133).

CUMULATIVE IMPACTS

Projects that could potentially contribute to cumulative impacts are those located in the same geographic area of influence defined as within a 5-mile radius of the proposed power plant. Because there is already a power generation facility on this site with active generation units, fire safety has already been addressed for the existing facility and for the surrounding industries. Staff finds that the addition of the proposed Unit 8 to this site would not add significant cumulative impacts to those already encountered and addressed by the existing fire and emergency response entities (SA p. 133).

FINDING

Implementation of Conditions of Certification **WORKER SAFETY-1** and **WORKER SAFETY-2**, the project will incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable LORS. In addition, the proposed plant will not have significant impacts on local fire protection services. The proposed facility is located within an existing power plant facility that is currently served by the local fire department. The fire risks of the

existing facility are similar and thus pose no new or added demands on local fire protection services. The Conditions of Certification provide assure that the Construction Injury and Illness Prevention Program and the Operations Safety and Health Program proposed by Mirant will be reviewed by the appropriate agencies before implementation. The conditions also require verification that the proposed plans adequately assure worker safety and fire protection and comply with applicable LORS.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Injury and Illness Prevention Program, containing the following:

- A Construction Safety Program;
- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Emergency Action Plan; and
- A Construction Fire Protection and Prevention Plan.

The Safety Program, the Personal Protective Equipment Program, and the Exposure Monitoring Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Construction Fire Protection and Prevention Plan and Emergency Action Plan shall be submitted to the Contra Costa Fire District for review and comment prior to submittal to the CPM for review and approval.

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 for review and approval a copy of the Project Construction Injury and Illness Prevention Program. The project owner shall provide a letter from the Contra Costa Fire District stating that they have reviewed and commented on the Construction Fire Protection and Prevention Plan Emergency Action Plan.

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

- An Operation Injury and Illness Prevention Plan;
- An Emergency Action Plan;
- A Hazardous Materials Management Program;
- An Operations and Maintenance Safety Program;
- A Fire Protection and Prevention Program (Cal. Code Regs., tit. 8, § 3221); and
- A Personal Protective Equipment Program (Cal. Code Regs., tit. 8, §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the Cal/OSHA Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders. The Operation Fire Protection Plan and the Emergency Action Plan shall be submitted to the Contra Costa Fire District for review and comment.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program. It shall incorporate Cal/OSHA's Consultation Service comments, stating that they have reviewed and accepted the specified elements of the proposed Operation Safety and Health Plan.

The project owner shall notify the CPM that the Project Operation Safety and Health Program (Injury and Illness Prevention Plan, Fire Protection Plan, the Emergency Action Plan, and Personal Protective Equipment requirements), including all records and files on accidents and incidents, is present on-site and available for inspection.

LAWS, ORDINANCES, REGULATIONS & STANDARDS
WORKER SAFETY AND FIRE PROTECTION

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Title 29 CFR §651 et seq.	Established the Occupational Safety and Health Act of 1970 to protect the health and safety of workers
Title 29 CFR §1910 et seq.	Contains the minimum occupational health and safety standards for general industry in the U.S.
Title 29 CFR §1952.170-1952-175 et seq.	Gives California full enforcement responsibility for relevant federal occupational health and safety standards.
STATE	
Cal. Code Regs., tit. 8, § 339	List of hazardous chemicals relating to the Hazardous Substance Information and Training Act
Cal. Code Regs., tit. 8, § 337, et seq.	Cal/OSHA regulations
Cal. Code Regs., tit. 24 § 3, et seq.	Incorporates the current addition of the Uniform Building Code
Health and Safety Code § 25500, et seq.	Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility
Health and Safety Code § 25500-25541	Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility
California Building Code Title 24, California Code of Regulations (Cal. Code Regs, tit. 24, § 3, et seq.)	Building code established to provide minimum standards to safeguard human life, health, property, and public welfare by controlling design, construction, and quality of materials of building.
INDUSTRY STANDARDS	
Uniform Fire Code Standards	Contains provisions necessary for fire prevention and information about fire safety, special occupancy uses, special processes, and explosive, flammable, combustible and hazardous materials.

GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

Introduction

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

The Compliance Plan is composed of the following elements:

1. General conditions that:

set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;

set forth the requirements for handling confidential records and maintaining the compliance record;

state procedures for settling disputes and making post-certification changes;

state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved conditions; and

establish requirements for facility closure plans.

2. Specific conditions of certification:

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

GENERAL CONDITIONS OF CERTIFICATION
COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

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

1. ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the Commission Decision;
2. resolving complaints;
3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;

4. documenting and tracking compliance filings; and,
5. ensuring that the compliance files are maintained and accessible.

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

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

The Commission has established a toll free compliance telephone number of **1-800-858-0784** for the public to contact the Commission about power plant construction or operation-related questions, complaints or concerns.

Pre-Construction and Pre-Operation Compliance Meeting

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

Energy Commission Record

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

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. all monthly and annual compliance reports filed by the project owner;
3. all complaints of noncompliance filed with the Energy Commission; and,
4. all petitions for project or condition changes and the resulting staff or Energy Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the conditions of certification are satisfied. The general compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the conditions of

certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate.

Access

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

Compliance Record

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

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

Compliance Verifications

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

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

1. reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;
2. appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audits of project records; and/or
4. Energy Commission staff inspections of mitigation and/or other evidence of mitigation.

Verification lead times (e.g., 90, 60 and 30-days) associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

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

required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

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

All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

Compliance Reporting

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

Compliance Matrix

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

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

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

Pre-Construction Matrix
Prior to commencing construction a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's **first** compliance submittal. It will be in the same format as the compliance matrix referenced above.

Tasks Prior to Start of Construction
Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Project owners frequently anticipate starting project construction as soon as the project is certified. In some cases it may be necessary for the project owner to file submittals prior to certification if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that pre-construction activities that are initiated prior to certification are performed at the owner's own risk. Failure to allow specified lead-time may cause delays in start of construction.

Various lead times for verification submittals to the CPM for conditions of certification are established to allow sufficient staff time to review and comment, and if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Monthly Compliance Report
The first Monthly Compliance Report is due the month following the Energy Commission business meeting date on which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events List. The Key Events List is found at the end of this section.

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

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

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

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

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

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

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

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

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

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

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

11. a listing of complaints, notices of violation, official warnings, and citations received during the month; a description of the resolution of any complaints which have been resolved, and the status of any unresolved complaints.

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

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

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

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

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

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

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

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

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

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

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

Confidential Information

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

Department of Fish and Game Filing Fee

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

Reporting of Complaints, Notices, and Citations

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering, with date and time stamp recording. The telephone number shall be posted at the project site and easily visible to passersby during construction and operation.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form on the following page.

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME: **AFC Number:**
COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number:
Date and time complaint received: Indicate if by telephone or in writing (attach copy if written): Date of first occurrence:
Description of complaint (including dates, frequency, and duration):
Findings of investigation by plant personnel: Indicate if complaint relates to violation of a CEC requirement: Date complainant contacted to discuss findings:
Description of corrective measures taken or other complaint resolution: Indicate if complainant agrees with proposed resolution: If not, explain: Other relevant information:
If corrective action necessary, date 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: _____ Date:

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

FACILITY CLOSURE

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

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

PLANNED CLOSURE

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

UNEXPECTED TEMPORARY CLOSURE

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

UNEXPECTED PERMANENT CLOSURE

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

General Conditions for Facility Closure

PLANNED CLOSURE

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

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

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

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

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

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

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

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

UNEXPECTED TEMPORARY CLOSURE

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

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

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

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

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

In the event of an unexpected temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, e-mail, etc., within 24 hours and shall take all necessary

steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

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

UNEXPECTED PERMANENT CLOSURE

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

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

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

A closure plan consistent with that for a planned closure shall be developed and submitted to the CPM within 90 days of the permanent closure (or other period of time agreed to by the CPM).

DELEGATE AGENCIES

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

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

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

ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Commission Decision. The specific action and amount of any fines the Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, inadvertence, unforseeable events, and other factors the Commission may consider.

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

NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1230 et. seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by current law or regulations.

INFORMAL DISPUTE RESOLUTION PROCEDURE

The following procedure is designed to informally resolve disputes concerning interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other 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 Energy Commission's delegate agents.

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

The procedure encourages all 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 Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

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

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

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures 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 Energy Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;

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

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

FORMAL DISPUTE RESOLUTION PROCEDURE-COMPLAINTS AND INVESTIGATIONS

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

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

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

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

A petition is required for **amendments** and for **insignificant project changes**. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of change process applies are explained below.

AMENDMENT (1769(a)(3))

A proposed project modification will be processed as an amendment if it alters the intent or purpose of a condition of certification, has potential for significant adverse environmental impact, may violate applicable laws, ordinances, regulations or standards, or involves an ownership change.

INSIGNIFICANT PROJECT CHANGE (1769(a)(2))

If a proposed modification does not alter the intent or purpose of a condition of certification, have potential for significant adverse environmental impact, violate applicable laws, ordinances, regulations, or standards, or result in an ownership change, it will be processed in accordance with Section 1769(a)(2). In this regard, as specified in Section 1769(a)92), Commission approval is not required.

VERIFICATION CHANGE

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

KEY EVENT LIST

PROJECT _____ DATE ENTERED

DOCKET # _____ PROJECT MANAGER

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

CONSTRUCTION MILESTONES

The following is the procedure for establishing and enforcing milestones, which includes milestone dates for pre-construction and construction phases of the project. Milestones and method of verification must be established and agreed upon by the project owner and the CPM no later than 30 days after the final decision becomes effective. If this deadline is not met, the CPM will establish the milestones.

I. **ESTABLISH PRE-CONSTRUCTION MILESTONES TO ENABLE START OF CONSTRUCTION WITHIN ONE YEAR OF CERTIFICATION**

1. Obtain site control.
2. Obtain financing.
3. Mobilize site.
4. Begin rough grading for permanent structures (start of construction).

II. **ESTABLISH CONSTRUCTION MILESTONES FROM DATE OF START OF CONSTRUCTION**

1. Begin pouring major foundation concrete.
2. Begin installation of major equipment.
3. Complete installation of major equipment.
4. Begin gas pipeline construction.
5. Complete gas pipeline interconnection.
6. Begin T-line construction.
7. Complete T-line interconnection.
8. Begin commercial operation.

The CPM will negotiate the above-cited pre-construction and construction milestones with the project owner based on an expected schedule of construction. The CPM may agree to modify the final milestones from those listed above at any time prior to or during construction if the project owner demonstrates good-cause for not meeting the originally-established milestones. Otherwise, failure to meet milestone dates without a finding of good cause is considered cause for possible forfeiture of certification or other penalties.

III. **A finding that there is good cause for failure to meet milestones will be made if any of the following criteria are met:**

1. The change in any milestone does not change the established commercial operation date milestone.
2. The milestone is changed due to circumstances beyond the project owner's control.
3. The milestone will be missed, but the project owner demonstrates a good-faith effort to meet the project milestone.

4. The milestone is missed due to unforeseen natural disasters or acts of God which prevent timely completion of the milestones.

If a milestone date cannot be met, the CPM will make a determination whether the project owner has demonstrated good cause for failure to meet the milestone. If the determination is that good cause exists, the CPM will negotiate revised milestones.

If the project owner fails to meet one or more of the established milestones and the CPM determines that good cause does not exist, the CPM will make a recommendation to the Executive Director. Upon receiving such recommendation, the Executive Director will take one of the following actions.

1. Conclude that good cause exists and direct that revised milestones be established; or
2. Issue a reprimand, recommend a fine pursuant to Public Resources Code sections 25534 and 25534.1, or take other appropriate remedial action and direct that revised milestones be established; or
3. Recommend, after consulting with the Energy Facility Siting and Environmental Committee, that the Commission issue a finding that the project owner has forfeited the project's certification.

ADOPTION ORDER

The Commission adopts this Decision on the Contra Costa Power Plant and incorporates the Presiding Member's Proposed Decision. This Decision is based upon the record of the proceeding (Docket No. 00-AFC-01).

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

1. The Conditions of Certification contained in this Decision, if implemented by the project owner, ensure that the whole of 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.

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

3. 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.

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

5. The analysis of record assesses all potential environmental impacts associated with the 530 MW configuration.

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

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

Therefore, the Commission ORDERS the following:

1. The Application for Certification of the Mirant Delta, LLC, as described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

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

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

4. For purposes of judicial review pursuant to Public Resources Code section 25531, this Decision is final thirty (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 this Decision in order to implement the compliance monitoring program required by Public Resources Code section 25532. All conditions in this Decision take effect immediately upon adoption and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

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 California Code of Regulations, title 20, section 1768.

Dated: May 30, 2001

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

WILLIAM J. KEESE
Chairman

MICHAL C. MOORE
Commissioner

ROBERT A. LAURIE
Commissioner

ROBERT PERNELL
Commissioner

ARTHUR H. ROSENFELD
Commissioner