4.5 AIR QUALITY

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☒	☐	☐
b) Expose sensitive receptors to pollutants?	☐	☐	☒	☐
c) Alter air movement, moisture, or temperature, or cause any change in climate?	☐	☐	☐	☒
d) Create objectionable odors?	☐	☐	☐	☒

SETTING

Overview of Criteria Air Pollutants

The U.S. Environmental Protection Agency (EPA) has set national ambient air quality standards (NAAQS) for ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), 10-micron particulate matter (PM10), and airborne lead. The Clean Air Act Amendments of 1990 set out a classification system for non-attainment areas that established attainment dates based on the design value for the area. Under this system, areas with higher baseline readings, or design values, were given more time to achieve compliance with the federal standards. An area where the NAAQS for a pollutant is exceeded more than three times in three years can be considered a non-attainment area and can be subject to planning and pollution control requirements that are more stringent than areas in attainment.

Non-attainment classifications and compliance dates vary by pollutant. Ozone non-attainment areas were designated as marginal, moderate, serious, severe, or extreme. Marginal ozone non-attainment areas were given three years after November 15, 1990, to come into attainment with the standards; moderate areas were given six years and serious areas were given nine years. Severe-15 areas were required to develop plans that would bring the areas into attainment within 15 years after November 15, 1990; severe-17 areas were given 17 years. Up to 20 years was provided for areas classified as extreme.

Carbon monoxide and PM10 non-attainment areas were designated as either moderate or serious. Moderate CO areas were required to demonstrate attainment by December 31, 1995; serious CO areas were given an additional five years past that date. Moderate PM10 areas were required to

demonstrate attainment by December 31, 1994; serious PM10 areas must demonstrate attainment by the end of 2001.

Under state law, the California Air Resources Board (CARB) has established State Ambient Air Quality Standards (SAAQS). Standards have been set for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, PM10, airborne lead, hydrogen sulfide, and vinyl chloride, at levels designed to protect the most sensitive members of the population, particularly children, the elderly, and people who suffer from lung or heart diseases. The current national and state standards are shown in Table 4.5.1.

State and national air quality standards alike consist of two parts: an allowable concentration of a pollutant and an averaging time over which the concentration is to be measured. The allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (e.g., one hour), or to a relatively lower average concentration over a longer period (e.g., eight hours, 24 hours, or one month). For some pollutants, there is more than one air quality standard, reflecting both its short-term and long-term effects.

In 1988, the state legislature enacted the California Clean Air Act which, similar to the federal Clean Air Act, calls for the designation of areas as either "attainment" or "nonattainment," but under the California Clean Air Act, such a designation was to be with respect to the more stringent SAAQS, not the NAAQS. The CARB designates the attainment status of California air basins with respect to state standards. Thus, areas in California have two sets of attainment/nonattainment designations: one set with respect to the national standards and one set with respect to the state standards.

The CARB is the state agency responsible for approving the air quality plans developed by air districts to meet both the NAAQS and SAAQS. The CARB also has primary responsibility for regulating mobile and area source emissions and for overseeing the activities of regional and local air districts called Air Pollution Control Districts (APCDs) or Air Quality Management Districts (AQMDs).

The project includes three power plants located in three California air basins: the San Francisco Bay Area Air Basin, the North Central Coast Air Basin, and the South Central Coast Air Basin. Figure 4.5.1 shows the locations of these air basins. Current attainment/nonattainment designations for the three relevant air basins are summarized in Table 4.5.2. Table 4.5.3 shows the number of days each air basin has exceeded the state standards for criteria air pollutants over the past three years.

TABLE 4.5.1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	State/a/	National/b/
Ozone	1 hour	0.09 ppm/c/	0.12 ppm
Carbon Monoxide	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide	1 hour	0.25 ppm	NA
	Annual	NA	0.053 ppm
Sulfur Dioxide	1 hour	0.25 ppm	NA
	3 hour	NA	0.5 ppm
	24 hour	0.04 ppm	0.14 ppm
	Annual	NA	0.03 ppm
Particulate Matter (PM10)	24 hour	50 $\mu g/m^3$/c/	150 $\mu g/m^3$
	Annual	30 $\mu g/m^3$	50 $\mu g/m^3$
Sulfates	24 hour	25 $\mu g/m^3$	NA
Lead	30 day	1.5 $\mu g/m^3$	NA
	Calendar Quarter	NA	1.5 $\mu g/m^3$
Hydrogen Sulfide	1 hour	0.03 ppm	NA
Vinyl Chloride	24 hour	0.010 ppm	NA
Visibility Reducing Particles	8 hour/d/ (10 a.m. to 6:00 p.m.)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%.	NA

/a/ State standards for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter (PM10), and visibility reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

/b/ National standards, other than ozone and those based on annual averages, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

/c/ ppm = parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter.

/d/ This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal range when the relative humidity is less than 70%.

NA: Not Applicable.

SOURCE: California Air Resources Board, *Proposed Amendments to the Area Designations for State Ambient Air Quality Standards,* approved in November 1996.

INSERT FIGURE 4.5.1
AIR BASINS

TABLE 4.5.2: AIR BASIN ATTAINMENT DESIGNATIONS

San Francisco Bay Area Air Basin

Pollutant	National	State
Ozone	Attainment /a/	Nonattainment
Carbon Monoxide	Attainment (except urbanized areas)	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Particulate Matter (PM10)	Unclassified	Nonattainment

North Central Coast Air Basin

Pollutant	National	State
Ozone	Attainment	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Monterey-Attainment San Benito-Unclassified Santa Cruz-Unclassified
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Particulate Matter (PM10)	Unclassified	Nonattainment

South Central Coast Air Basin

Pollutant	National	State
Ozone	Attainment /b/	Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Particulate Matter (PM10)	Unclassified	Nonattainment

/a/ On August 21, 1997, the U.S.E.P.A. proposed to redesignate the San Francisco Air Basin from an attainment area to a moderate non-attainment area. However, to date, the proposal has not been formally published in the Federal Register.

/b/ San Luis Obispo County is classified as attainment for ozone. Other counties in the air basin are in nonattainment.

SOURCE: California Air Resources Board, *Proposed Amendments to the Area Designations for State Ambient Air Quality Standards*, approved in November 1996.

TABLE 4.5.3: AIR POLLUTANT SUMMARY, 1993-1995 /a/

San Francisco Bay Area Air Basin

	Days Over State Standard		
Pollutant	1993	1994	1995
Ozone	19	13	28
Carbon Monoxide	0	0	0
Nitrogen Dioxide	0	0	0
Sulfur Dioxide	0	0	0
Particulate Matter (PM10) /b/	12/89	10/91	7/89

North Central Coast Air Basin

	Days Over State Standard		
Pollutant	1993	1994	1995
Ozone	12	6	8
Carbon Monoxide	0	0	0
Nitrogen Dioxide	0	0	0
Sulfur Dioxide	0	0	0
Particulate Matter (PM10) /b/	11/67	6/68	14/68

South Central Coast Air Basin
San Luis Obispo District /c/

	Days Over State Standard		
Pollutant	1993	1994	1995
Ozone	4	2	7
Carbon Monoxide	0	0	0
Nitrogen Dioxide	0	0	0
Sulfur Dioxide	1	0	0
Particulate Matter (PM10) /b/	24/71	2/85	6/73

/a/ This table shows for each air basin the number of days in which at least one air monitoring station recorded a violation of the state standard.

/b/ PM10 measurements are not taken every day. The table shows the number of days during which PM10 concentrations exceeded the State standard at one or more of the monitoring stations in the air basin and the number of days during the year during which PM10 measurements were recorded.

/c/ The South Central Coast Air Basin includes three different districts: San Luis Obispo County, Santa Barbara County and Ventura County APCDs. This table includes violations only for the San Luis Obispo District.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1993, 1994, 1995.*

APCDs and AQMDs, in addition to having primary responsibility for preparing air quality plans for the areas within their jurisdiction, are also responsible for regulating stationary sources. Stationary sources are regulated through a permitting process in which applicants must secure an Authority to Construct (ATC) and a Permit to Operate (PTO) from the applicable APCD or AQMD prior to operation of new or modified equipment that may affect air quality. Stationary sources can also be subject to emission control retrofit requirements imposed by the applicable APCD and AQMD.

Toxic Air Contaminants

"Toxic air contaminants" differ from "criteria air pollutants" discussed above, in that there are no established outdoor standards (a risk assessment approach is used instead). Toxic air contaminants (TACs) may cause cancer-related effects, in addition to adverse non-cancer-related health effects. There are hundreds of different types of TACs, with varying degrees of toxicity. Title III of the Federal Clean Air Act Amendments includes a list of 189 Hazardous Air Pollutants (HAPs). Sources of TACs include industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Most air toxic emissions related to electric utility operations result from burning oil rather than natural gas.

Assembly Bill (AB) 2588, the Air Toxics "Hot Spots" Information and Assessment Act, enacted in 1987, requires plants emitting TACs to prepare inventories of actual toxic air emissions from their entire facility. Air districts are then required to prioritize these facilities based on the quantity and toxicity of these emissions, and their proximity to areas where the public may be exposed.

Health risk assessments are prepared for prioritized facilities to identify any "significant health risks" resulting from a facility's operation. AB2588 requires that all exposed individuals be notified of any such risks identified in the health risk assessment. The health risk levels used for public notification in the "hot spots" program are set by individual air districts. Health risk assessments have been performed for Moss Landing and Morro Bay (PG&E, 1996). The results of these assessments are summarized in the Local Setting below.

Regional Setting

A description of each air basin is presented below.

Bay Area Air Quality Management District

The Oakland Power Plant is located within the San Francisco Bay Area Air Basin (SFBAAB) under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB includes San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano,

Napa, Sonoma, and Marin counties. The Bay Area topography is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. The complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the Bay Area. The only major break in California's Coast Range occurs in the Bay Area. Here the Coast Range splits into western and eastern ranges. Between the two ranges lies the San Francisco Bay. The major gap in the western coast range is known as the Golden Gate, and the major gap in the eastern coast range is the Carquinez Strait. These gaps allow air to pass into and out of the Bay Area and the Central Valley. During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula.

Summertime temperatures in the Bay Area are determined in large part by the effect of differential heating between hot inland valleys and the cool eastern Pacific Ocean. On summer afternoons, the temperatures at the coast can be 35 degrees Fahrenheit cooler than temperatures 15 to 20 miles inland. At night, this contrast usually decreases to less than 10 degrees. In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime, the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

Regulations, Plans and Policies

The Bay Area Air Quality Management District (BAAQMD) is the agency charged with regulating air pollutant emissions in the SFBAAB. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. The BAAQMD controls stationary source emissions by issuing air quality permits for new and modified sources that require the implementation of Best Available Control Technology (BACT) if specified trigger levels are exceeded, and by adopting rules to require emission reduction from existing sources.

As required by the California Clean Air Act, BAAQMD has published its *Bay Area '94 Clean Air Plan ('94 Clean Air Plan)*. The goal of the *'94 Clean Air Plan* is to improve air quality through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives; its main objective is to attain the state air quality standards for ozone (BAAQMD, 1994). Publication of this plan occurs every three years. The 1997 plan is being formulated at this time. Collectively, the BAAQMD's proposed stationary and mobile source control measures are expected to reduce NO_x emissions by 1.4 tons per day in 1997 and four tons per day when fully implemented.

The specific rules that apply to combustion turbines at the Oakland power plant are discussed under the Local Setting below.

Air Quality Trends for Criteria Pollutants

Ozone (O_3). The most pervasive air quality problem in the San Francisco Bay Area Air Basin is high ozone concentrations. Ozone is not emitted directly, but is a secondary pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x), ozone precursors. Motor vehicles are the major source of ozone precursors in the Bay Area (BAAQMD, 1996). In the most recent emissions inventory, electric utilities accounted for approximately five percent of NO_x emissions and 0.02% of ROG emissions in the air basin (CARB, 1995). During late spring, summer, and early fall, light winds, low mixing heights, and abundant sunshine combine to produce conditions favorable for maximum ozone production. Once formed, O_3 can cause eye and respiratory irritation, reduce resistance to lung infection, and may aggravate pulmonary conditions in persons with lung disease. O_3 also can damage vegetation, fabrics and untreated rubber.

In the period since the passage of the CCAA, the Bay Area has continued to experience reductions in peak ozone levels. Peak ozone concentrations have diminished 2.8% per year, on average, since 1986. This improvement is due to reductions in emissions of ozone precursors. The reductions are widespread, although some areas show greater improvements than others. The South Bay region appears to have shown the greatest improvement, while the eastern parts of the Bay Area have shown the least (BAAQMD, 1994).

Population exposure to ozone has been reduced by more than two thirds on average since 1986, a rate much larger than the rate of decrease in peak ozone concentrations. This is because most ozone exceedances that now occur in the Bay Area are only marginally above the ozone standard. A small reduction in peak ozone levels eliminates many hours with ozone concentrations at unhealthy levels above the standard (BAAQMD, 1994). While O_3 concentrations are expected to continue to decline given existing emission control strategies and given the additional measures that will be implemented under the *'94 Clean Air Plan*, the state standard for O_3 is still not expected to be achieved at all times in all places in the Bay Area by the turn of the century.

Nitrogen Dioxide (NO_2). There are two oxides of nitrogen that are important in air pollution: nitric oxide (NO) and nitrogen dioxide (NO_2). Nitric oxide, along with some NO_2, is emitted from motor vehicle engines, power plants, refineries, industrial boilers, incinerators, aircraft, and railroads. Nitrogen dioxide is primarily formed when NO reacts with atmospheric oxygen in the presence of Reactive Organic Gases (ROG) and sunlight; the other product of this reaction is ozone. Nitrogen dioxide is the "whiskey brown" colored gas, more commonly known as smog. Nitrogen dioxide increases damage from respiratory disease and irritation, and may reduce resistance to certain infections. In the most recent emissions inventory, electric utilities accounted for approximately five percent of NO_x emissions in the air basin (CARB, 1995).

Concentrations of nitrogen dioxide are highest in the South Bay, where the nitrogen dioxide standard was last exceeded in 1980.

Carbon Monoxide (CO). Carbon monoxide is a non-reactive pollutant produced by inefficient combustion and emitted primarily by motor vehicles. Based on BAAQMD inventories, approximately 65% of the CO in the Bay Area is generated by motor vehicles. In 1993, electric utilities accounted for 0.22% of the CO emissions in the basin (CARB, 1995). Of the criteria pollutants, CO is usually the second highest pollutant (behind NO_x) emitted by fossil-fuel power plants. Ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic and are also influenced by meteorological factors such as wind speed and atmospheric mixing. When strong surface inversions formed on winter nights are coupled with near-calm winds, CO from automobile exhaust becomes concentrated. The highest CO concentrations in the SFBAAB occur during the winter. The CO standards were last exceeded prior to 1992 (BAAQMD, 1996). Carbon monoxide interferes with the transfer of oxygen to the blood. It may cause dizziness and fatigue and can impair central nervous system functions.

In the period since the passage of the California Clean Air Act, the Bay Area has continued to experience reductions in peak carbon monoxide levels. In 1992 and 1993, the BAAQMD attained the state ambient standard for carbon monoxide and was redesignated as an attainment area by CARB. CO emissions are expected to continue to decline significantly throughout the year 2000 (BAAQMD, 1994).

Sulfur Dioxide (SO_x). Sulfur dioxide is the natural combustion product of sulfur or sulfur-containing fuels. Major sources of ambient sulfur dioxide (SO_2) include activities such as electricity generation, petroleum refining and shipping. In humid atmospheres, sulfur oxides can react with water vapor to produce sulfuric acid, a component of acid rain. It can also form sulfate particulates, which reduce visibility. Sulfur dioxide is a lung irritant, and in combination with moisture and oxygen, SO_2 can damage vegetation and man-made materials. Sulfur dioxide levels are generally highest during the winter.

Power plants that burn coal in the eastern United States are large emitters of SO_2. However, coal is not burned at any of the power plants to be divested. The Oakland Power Plant uses only distillate for fuel, and the Moss Landing and Morro Bay plants burn primarily natural gas. The SO_2 standard is currently being met throughout the Bay Area, with seasonal maximums rarely exceeding 50% of the standard. SO_2 levels at most Bay Area monitoring stations are less than 10% of the standard (BAAQMD, 1996).

Fine Particulate Matter (PM10). PM10 refers to particulates less than 10 microns in diameter -- those which can be inhaled and cause health effects. Demolition, construction and vehicular traffic are major sources of particulates in urban areas. Natural sources of particulates include wind-blown dust, and ocean spray. In 1993, electric utilities accounted for 0.18% of the basin's PM10 emissions (CARB, 1995). Very small particulates of certain substances can cause lung

damage, or can contain absorbed gases that may be injurious. Particulates can also damage materials and reduce visibility.

Particulate levels in the Bay Area are typically low near the coast and higher inland, with the highest levels in dry, sheltered valleys. The major human-generated sources in the Bay Area include motor vehicle travel over paved and unpaved roads, demolition and construction activities and woodburning in fireplaces and stoves. PM10 emissions are expected to increase into the future (Association of Bay Area Governments, 1994).

Monterey Bay Unified Air Pollution Control District

The Moss Landing Power Plant is located within the North Central Coast Air Basin (NCCAB) under the jurisdiction of the Monterey Bay Unified Air Pollution Control District (MBUAPCD). The NCCAB includes Santa Cruz, San Benito, and Monterey counties. The basin lies along the central coast of California covering an area of 5,159 square miles. The northwest sector of the air basin is dominated by the Santa Cruz Mountains. The Diablo Range marks the northeastern boundary and, together with the southern extent of the Santa Cruz Mountains, forms the Santa Clara Valley which extends into the northeastern tip of the Basin. Farther south, the Santa Clara Valley evolves into the San Benito Valley which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley which extends from Salinas at the northwest end to King City at the southeast end. The western side of the Salinas Valley is formed by the Sierra de Salinas, which also forms the eastern side of the smaller Carmel Valley; the coastal Santa Lucia Range defines the western side of the Valley.

The semi-permanent high pressure cell over the eastern Pacific Ocean is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement.

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Typically during the fall, when surface winds become weak, north or east winds develop and transport pollutants from either the San Francisco Bay area or the Central Valley into the NCCAB.

During the winter, the Pacific high pressure area has less influence on the air basin. Air frequently flows in a southeasterly direction out of the Salinas and San Benito valleys, especially during night and morning hours. Northwest winds are still dominant in the winter, but easterly flow is more frequent. In general, the air quality for the basin as a whole is good during the winter and early spring.

In the Monterey Bay area, winter temperatures average 45-50 degrees Fahrenheit and summer temperatures average in the low 70s. Greater temperature extremes occur in the inland portions of the air basin.

Regulations, Plans and Policies

The 1991 Air Quality Management Plan (AQMP) for the Monterey Bay Region addresses attainment of air quality standards for ozone and inhalable particulate matter (PM10) within Monterey, San Benito, and Santa Cruz counties. The AQMP addresses state planning requirements and establishes the basis for meeting federal requirements. CARB determined that a 30% reduction of those emissions leading to the formation of ozone is required to achieve the standard in the North Central Coast Air Basin. The 1991 AQMP was updated in 1994, and the 1994 AQMP addresses attainment of the State ozone standard only. The 1994 AQMP includes a revised design value which reduced emission reductions needed to achieve the State ozone standard from 30% to 20%. With the revised design value, no additional control measures were needed beyond those adopted between 1991 and 1994 (Brennan, 1997).

The AQMP presents control measures and strategies for reducing air pollutants which are precursors to ozone formation. While overall emission reduction requirements for PM10 have yet to be determined, several ozone control measures included in the AQMP address PM10 emissions. Implementation of the AQMP is expected to reduce PM10 by two tons per day.

The specific rules that apply to emissions from utility power boilers are discussed under the Local Setting below.

Air Quality Trends for Criteria Pollutants

Ozone (O_3). The primary sources of ROG within the planning area are motor vehicles, solvents, the petroleum industry, and pesticides. The primary sources of NO_x are motor vehicles, the petroleum industry and power plants. In general, ROG and NO_x emissions are expected to drop due to motor vehicle emission controls.

Nitrogen Oxide (NO_x). NO_x emissions are expected to decrease due to motor vehicle emission controls, despite some increases in stationary source fuel combustion (MBUAPCD, 1991).

Carbon Monoxide (CO). CO emissions are expected to steadily decline in the future, as a result of motor vehicle emission controls (MBUAPCD, 1991).

Sulfur Dioxide (SO_2). The AQMP predicted that SO_2 emissions would show a slight increase, then dip in the mid-1990s, and then slightly increase again (MBUAPCD, 1991).

Fine Particulate Matter (PM10). PM10 emissions are predicted to continually increase at an annual rate of about one percent, primarily from increasing road travel and construction activities (MBUAPCD, 1991).

San Luis Obispo Air Pollution Control District

The Morro Bay Power Plant is located within the South Central Coast Air Basin (SCCAB) under the jurisdiction of the San Luis Obispo Air Pollution Control District. The SCCAB is approximately 3,300 square miles and includes San Luis Obispo, Santa Barbara, and Ventura counties. The southern zone of this air basin includes Ventura County and most of Santa Barbara County. San Luis Obispo County and that portion of Santa Barbara County north of the Santa Ynez Mountains is called the northern zone of the SCCAB.

The northern section of the SCCAB is bordered by Monterey County to the north, Santa Barbara County to the south, the Pacific Ocean to the west, and the San Joaquin Valley Air Basin (SJVAB) to the east. The main geographical features include the coastal plateau along the Pacific Ocean, which houses 75% of the population and most of the emissions in the northern zone. The Carrizo Plain is bordered on the east by the Teblor Range of mountains (elevation 2,500-4,300 feet), which lies in a northwest-southeast direction.

The SCCAB has a maritime climate characterized by relatively warm days, cool nights, and moderate humidity. The meteorology of the basin is strongly influenced by the existence of a persistent high pressure area residing over the Pacific Ocean. Seasonal variations in the strength and location of the high pressure system, along with circulation driven by differences in land and sea temperatures, affect the local winds. Prevailing winds in the SCCAB are westerly during spring, summer and fall. In the northern part of the SCCAB, the winds tend to be from the west-northwest; in the southern half, they tend to be from the west-southwest. During winter periods, winds are frequently easterly. Average wind speeds in the SCCAB are relatively low.

In the coastal areas of the basin, monthly average temperatures vary only approximately 13 degrees from winter to summer; typical temperatures range from a low of approximately 54 degrees Fahrenheit in January to a high of approximately 67 degrees in August. In the areas of the basin further inland, temperatures are very similar to the coastal area but exhibit slightly larger diurnal and seasonal variations, with monthly average temperatures varying approximately 22 degrees Fahrenheit from winter to summer.

Regulations, Plans and Policies

The *1995 Clean Air Plan* (*1995 CAP*) is a comprehensive update of the 1991 Plan, but with fewer control strategies recommended for adoption. Implementation of the *1995 CAP* is expected to bring San Luis Obispo County into attainment of the state ozone standard by the end of 1997 (SLOAPCD, 1995).

San Luis Obispo County is designated a moderate nonattainment area for the state ozone standard. Moderate attainment areas that have not met the criteria for attainment by December 31, 1997, will be reclassified as serious nonattainment and will be required to implement more stringent control requirements.

The *1995 CAP* presents a detailed description of the sources and pollutants which impact the County, future air quality impacts to be expected under current growth trends, and an appropriate control strategy for reducing ozone precursor emissions.

The specific rules that apply to utility boiler emissions are discussed under the Local Setting below.

Air Quality Trends for Criteria Pollutants

Ozone (O_3). In San Luis Obispo County, the primary sources of ROG are motor vehicles, organic solvents, the petroleum industry and pesticides. Major sources of O_3 are motor vehicles, public utility power generation and fuel combustion by various industrial sources. In general, ozone levels have been declining in recent years. Future monitoring is necessary to provide a clearer indication of trends.

Nitrogen Dioxide (NO_2). Local ambient NO_2 levels tend to be highest in the winter, when morning temperature inversions create a low ceiling over pollutants emitted close to ground level. In the County's monitoring record, the highest hourly average of 0.11 ppm NO_2 was measured at San Luis Obispo and Morro Bay in 1981; this is less than half of the state one-hour standard of 0.25 ppm. Highest annual average at all monitoring locations have historically measured less than half of the 0.05 ppm national average standard.

Carbon Monoxide (CO). Typically, highest CO measurements observed in recent years are about half of the state 20 ppm hourly standard. CO concentrations show a significant improvement from the 1970s. The last violations of the state or federal CO standards were recorded in 1975 (SCDAPCD, 1995).

Sulfur Dioxide (SO_2). San Luis Obispo County was designated as attainment for the state SO_2 standard in November 1990. The highest SO_2 emissions are measured at the Unocal Santa Maria Refinery, south of the project site.

Fine Particulate Matter (PM10). For several reasons, including a lack of recorded PM10 data, an accurate assessment of PM10 trends is difficult. A review of existing data shows that no clear improvement in PM10 levels has been made in the last five years.

Local Setting

Combustion-related emissions from boilers are the major source of air pollutants from PG&E's fossil-fired power plants. Emissions are related to the level of plant utilization and are influenced by the amount and type of fuel burned. Some of the criteria air pollutants (e.g., SO_2 and PM10) and most Hazardous Air Pollutants (HAPs) are emitted in substantial quantities only when the boilers burn residual oil.

Utility power plants can contribute large quantities of some air pollutants in their local air basins. An owner or operator of any piece of air pollutant-emitting equipment is required to obtain a permit from the appropriate air district before commencing construction or operation. District rules prohibit transfer of permits from one owner to another upon change of ownership of a facility. However, state law requires the air districts to provide a mechanism for reissuing a permit to a new owner or operator and prohibits the imposition of more stringent controls or operating conditions solely as a result of a change of ownership (Health and Safety Code §42301 (f)). Thus, the new owner of a power plant acquired as a result of the project would be required to apply for and would obtain a new permit from the governing air district, but the new permit cannot contain limitations or other requirements that are more stringent than those contained in the existing permits. The existing setting for each of PG&E's power plants to be divested is summarized below.

Morro Bay

General Plant Characteristics

The Morro Bay power plant has four generating units consisting of boilers, turbogenerators, turbines and associated facilities (e.g., a switchyard, a control building, fuel oil tanks located on and offsite, an abrasive blasting booth, a firewater tank and surface impoundments). The boilers are capable of burning natural gas and fuel oil, but during the ozone season they are permitted to burn oil only during natural gas curtailments or during natural disasters. PG&E no longer burns fuel oil in the generating units at this plant.

U.S. Highway 1 runs along the eastern boundary of the power plant. In general, the project site is surrounded by light industrial, commercial, marine, residential and recreational land uses. A mobile home park and the Lila Kaiser Park are located on the northern portion of the site. Residential land uses are located just south of the power plant. The closest sensitive receptors are boat owners located in the harbor, approximately 300 feet west of the power building, that houses the four generating units. The offsite fuel tank farm is located about 3.8 miles northeast of Morro Bay and is surrounded mainly by agricultural land.

Existing Emissions

Air emissions from natural gas or fuel oil combustion at the power plant are emitted through three stacks. Boilers 1 and 2 share a common stack and Boilers 3 and 4 each have their own stack. In general, fuel combustion generates emissions of criteria air pollutants and HAPs.

Other contributors of air emissions at the plant include storage tanks for organic liquids, off-site steam generators, solvent cleaning operations, maintenance coating operations, and other miscellaneous sources. Results of the 1993 base year inventory indicate that these non-boiler emission sources emitted less than a ton per year of any single criteria pollutant and less than 50 pounds per year of any single HAP, which are below the de minimus levels (PG&E, 1996).

The plant's total combustion emissions are dependent on each of the four units' emission rates and combined utilization. In 1995, Units 1 and 2 were utilized approximately 5.4% of the time, while Units 3 and 4 were utilized 17% of the time. Table 4.5.4 shows the 1995 criteria pollutant emissions from the plant and compares those values to the total county-wide emissions. Note that the particulate emissions and high SO_2 emissions were due primarily to burning oil, which is not an expected future operation at the site. Table 4.5.4 shows that in 1995 the plant's NO_x emissions were about 5% of the County total. From 1977-1995, the Morro Bay power plant has had annual operations ranging from 10% to 70% of capacity, so the percentage of some pollutants has been higher in other years than in 1995 when the plant operated at relatively low levels.

Most HAP emissions result from burning oil rather than natural gas. A health risk assessment was prepared to assess the risk from oil burning and to determine the maximum oil burn level that would not result in exceedance of accepted HAP risk thresholds (PG&E, 1996). The assessment assumed that Units 1 through 3 burned only natural gas and operated at annual capacity factors of 29.9% for Units 1 and 2, and 50.7% for Unit 3. Erring on the conservative side, the assessment assumed that Unit 4 burned 100% residual oil at a 100% capacity factor, even though oil is no longer used at the site. Other sources included in the assessment include emissions from the moored ship, diesel fire engines, an emergency diesel generator, a gasoline dispenser, and boiler chemical charging (PG&E, 1996). These other sources produced very low HAP emissions in comparison to the boilers, except benzene emitted from the moored ship, gasoline from gasoline dispensing activities, and ammonia from boiler chemical charging. When burning natural gas, the only important HAP emissions were benzene and formaldehyde, while Boiler 4 accounted for various HAP emissions of potential concern, especially nickel, when burning oil.

The number of excess cancer cases attributed to plant emissions were calculated at four locations, including the point of maximum exposure (not a location of normal human presence), the point

of maximum exposure for a sensitive receptor (an actual location of human presence), the point of maximum exposure for an off-site worker (an actual workplace), and the most highly

TABLE 4.5.4: MORRO BAY POWER PLANT, 1995 EMISSIONS COMPARED TO COUNTY-WIDE EMISSIONS /a/

Source	Emissions (TPY)				
	ROG	CO	NO_x	SO_x	PM10
Morro Bay power plant in 1995 /b/	18	215	685	734	88
San Luis Obispo County in 1993 /c/					
- stationary	2,373	759	1,905	4,234	288
- area	3,402	13,768	256	11	25,729
- mobile	5,387	46,019	10,008	45	704
- natural	51	715	11	0	102
- total	11,209	61,262	12,176	5,015	26,824
Morro Bay Plant, % of County Total, excluding "natural" sources	0.16	0.36	5.63	14.64	0.33

/a/ Source: Pacific Gas and Electric Company (PG&E), *Proponent's Environmental Assessment: Pacific Gas and Electric Company's Proposed Sale of Four Generating Plants*, November 15, 1996; minor modifications by Environmental Science Associates (1997)

/b/ Source: Title V, Federal Permit Application for PG&E's Morro Bay Power Plant, May 19, 1996. Data on organic gas emissions were for Volatile Organic Compounds (VOC) rather than Total and Reactive Organic Compounds.

/c/ Source: California Air Resources Board, *California Emission Inventory Development and Reporting System -CEIDARS, 1993 Inventory*. PM10 is calculated as a percent of PM emissions, which might not represent actual emissions for particular sources.

exposed residential location. The number of excess cancer cases attributed to plant emissions for persons exposed to plant emissions for their entire lifetime at each location were calculated as 9.5, 0.83, 0.13, and 0.48 per million persons exposed, respectively. Hexavalent chromium, nickel and arsenic, emitted only when burning oil, accounted for about 95% of the total calculated risk (PG&E, 1996). The SLOAPCD recognizes an increase of one excess cancer incidence per one million persons to be a risk level that needs to be remediated (Roemer, 1997).

The calculated chronic hazard index attributed to plant emissions was calculated as 0.22, 0.0156, 0.0017, 0.0033 at each of the above-referenced locations, below the level associated with significant adverse chronic effects (the California Air Pollution Control Officers Association [CAPCOA] suggests a significance threshold at a hazard index of 1.0) (PG&E, 1996). Phosphorous from oil burning accounted for more than 97% of the chronic hazard index at the point of maximum exposure.

The calculated acute hazard index attributed to plant emissions was calculated as 0.42, 0.27, 0.73, and 0.70, at the same locations, below CAPCOA's suggested significance threshold of 1.0. Nickel emissions from Unit 4 accounted for over 99% of this calculated hazard index. The maximum fuel oil usage rate that was calculated to keep the acute hazard index below 1.0 was 52,800 gal/hr, whereas the maximum hourly oil burn rate for Units 3 and 4 is about 22,000 gal/hr (PG&E, 1996).

Existing and Future Controls

Existing permits allow all four units to operate continuously seven days a week for 24 hours per day. In accordance with the SLOAPCD's current utility boiler NO_X Rule 429 (as revised November 13, 1996), Units 1 and 2 are currently required to meet a 150 ppm NO_X limit when using natural gas (450 ppm on oil). Plans have not been made to install any reduction technologies on Boilers 1 and 2, since these boilers meet the current requirements of Rule 429.

Units 3 and 4 were required to meet an aggregate combined limit of 67 ppm when burning natural gas (250 ppm when burning oil) by June 1996, or to meet a 10 ppm limit (25 ppm on oil) at one of the two boilers by January 1997. PG&E met the 67 ppm limit by installing Low NO_X Combustion (LNC) systems on Boilers 3 and 4 in 1995 and 1996, respectively. Both units must meet the final NO_X compliance limit of 10 ppm by January 1, 2000. PG&E has proposed to meet these requirements by installing Selective Catalytic Reduction (SCRs) systems at both units by that date.

As another means of reducing emissions, the current Rule 429 limits fuel oil firing at all times, except during periods of natural gas curtailments or during natural disasters. The air district requires notification prior to fuel oil firing in any of the plant's four units.

Moss Landing

General Plant Characteristics

The Moss Landing Power Plant consists of boilers, turbine generators and associated facilities (e.g., a package boiler for start-up steam energy, a switchyard, a control building, fuel oil tanks, a firewater tank, and surface impoundments). PG&E currently operates Units 6 and 7, two of the seven generating units located at the power plant. Units 1 through 5 were retired as of January 1,

1995. PG&E has surrendered the air quality permits for these units. To bring these units back into service, new air quality permits would need to be issued. The boilers for Units 6 and 7 are capable of burning natural gas or fuel oil; however, PG&E removed the capability of burning fuel oil when it installed low-NO_x burners (PG&E, 1996).

The plant is located directly inland from the Moss Landing Harbor in an area of heavy industrial, agricultural and recreational land uses. Approximately 50 residences are located within one mile of the plant. The closest sensitive receptors are boat owners living in the Moss Landing Harbor Area. These residents are located approximately 600 feet southwest of the building that houses Units 6 and 7. However, the plant's emission stacks are 500 feet in height, which results in dispersion of the majority of emissions miles downwind from the plant site (Quetin, 1997). The predominant wind direction at the site is from the west, with an average wind speed of 8 miles per hour. An important secondary wind flow component is also observed from the east-southeast which is typically observed at night as a nocturnal drainage flow. Daily and seasonal variations are small.

Existing Emissions

Boiler emissions are emitted through two stacks. Fuel combustion generates emissions of criteria air pollutants and hazardous air pollutants (HAPs). HAPs are produced primarily during fuel oil combustion.

Other contributors to air emissions from the plant include organic liquid storage tanks, a paint spray facility, cold solvent degreasing operations, a gasoline dispensing facility, and abrasive blasting operations. The sandblasting booth is equipped with a dust collection system. Results of the 1993 base year inventory indicate that non-boiler emission sources emitted less than a ton per year of any single criteria pollutant and less than 50 pounds per year of any single HAP, which are less than the threshold quantities for reporting under BAAQMD Regulation 2.6.405.6 (PG&E, 1996).

The plant's combustion emissions are dependent on both units' emission rates and combined utilization. In 1993, Units 6 and 7 together had a capacity factor of 54.4%. Table 4.5.5 shows the 1993 criteria pollutant emissions from the plant and compares those values to the total county-wide emissions that year.

As indicated in Table 4.5.5, the Moss Landing Power Plant accounted for relatively large portions of Monterey County's 1993 inventory of SO_2 and NO_x. The SO_2 emissions largely come from burning residual oil, which is no longer feasible due to PG&E's installation of low-NO_x burners (PG&E, 1996) and the retirement of the operating permits for the boilers (Quetin, 1997).

Most HAP emissions result from burning oil rather than natural gas. The plant's health risk assessment was based on 1993 emission data and analyzed the operation of all seven units located at the plant. The maximum exposure to plant emissions of carcinogens was estimated to be at the plant boundary. The maximum estimated excess cancer risk for exposure in a residence was calculated as just under 0.8 in a million, or 0.8 excess cancer cases for every million persons hypothetically living at this location for 70 years. The MBUAPCD recognizes an increase of one excess cancer incidence per 100,000 persons to be in violation with its Rule 1000 for HAP emissions. The risk to the maximally exposed worker, experiencing higher concentrations but for a shorter period of time, was slightly less in comparison to residential exposure for a full 70 years. However, rather than power plant boiler emissions, it was gasoline storage and fueling emissions that accounted for over 70% of this estimated risk (PG&E, 1996).

TABLE 4.5.5: MOSS LANDING POWER PLANT, 1993 EMISSIONS COMPARED TO COUNTY-WIDE EMISSIONS /a/

Source	Emissions (TPY)				
	ROG	CO	NO_x	SO_x	PM10
Moss Landing power plant /b/	73	6,660	5,191	1,199	202
Monterey County /c/					
- stationary	2,902	9,103	8,092	1,445	595
- area	9,096	15,878	423	26	33,003
- mobile	7,734	65,850	13,487	1,307	1,033
- natural	37	686	11	0	99
- total	19,768	91,516	22,013	2,781	34,730
Moss Landing plant, % of County Total, excluding "natural" sources	0.37	7.28	23.58	43.11	0.58

/a/ Source: Pacific Gas and Electric Company (PG&E), *Proponent's Environmental Assessment: Pacific Gas and Electric Company's Proposed Sale of Four Generating Plants*, November 15, 1996; minor modifications by Environmental Science Associates (1997)

/b/ Source: Letter from Douglas Quetin. Air Pollution Control Officer of the MBUAPCD to California PUC, 1997. This data is from the District's 1993 emissions inventory. The majority of ROG emissions in 1993 were from the on-site storage of fuel oil. ROG emissions from fuel oil storage should diminish in the future if the tanks are deactivated as currently proposed by PG&E. Emissions of NOx for 1993 were below the average recorded between 1990 and 1995.

/c/ Source: California Air Resources Board, *California Emission Inventory Development and Reporting System -CEIDARS, 1993 Inventory*. PM10 is calculated as a percent of PM emissions, which might not represent actual emissions for particular sources. Data on

organic gas emissions were for TOCs and ROCs, rather than Volatile Organic Compounds (VOC).

For chronic exposure to non-carcinogenic effects, the maximum exposure levels beyond the plant itself were below the level associated with adverse chronic effects. The chronic hazard index for non-carcinogenic effects was calculated to be 0.0053 at the location of maximum pollutant concentrations. An index of less than 1.0 is considered to be a "safe" level (not requiring remediation) by the SLOAPCD and BAAQMD (Roemer, 1997; BAAQMD, 1996). For acute exposure to short-term, maximum hourly emissions, the acute hazard index for non-carcinogenic risk for the maximally exposed individual was calculated to be 0.298, a level considered safe (PG&E, 1996).

Existing and Future Controls

Both operating units are permitted to burn natural gas or residual fuel oil and are permitted to operate seven days per week for 24 hours per day. However, wintertime burning of fuel oil is prohibited by MBUAPCD Regulation 431 through the year 2001. NO_X reduction technologies are required for Units 6 and 7 to meet requirements of Regulation 431.

Irrespective of the plant's inability to burn oil at this time, the Permits to Operate for Units 6 and 7 restrict the use of oil and mixtures of oil and natural gas during the period of May 1 through October 31, except in the event of Emergency Conditions or a Force Majeure Natural Gas Curtailment, as defined in Rule 431. Other conditions of the Permit to Operate that became effective on December 31, 1996 include the following: NO_X emissions are not to exceed 90 ppm during operations utilizing natural gas and at loads in excess of 400 gross MW; NO_X emissions are limited to 450 lbs/hour during operation on natural gas and at loads at or below 400 gross MW; and NO_X emissions from the entire plant are not to exceed 9.64 tons/day averaged over the period of May 1 through October 31 annually. Effective December 31, 2000, NO_X emissions from one of the two units must not exceed 10 ppm during operation on natural gas and 25 ppm during operation on fuel oil. The other unit must meet the same requirements by December 31, 2001. PG&E has met the current NO_X limits by installing a Low-NO_X Combustion system and proposes to employ SCRs on Units 6 and 7 in the years 2000 and 2001, respectively, to achieve the final limits.

Oakland

General Plant Characteristics

The Oakland power plant consists of turbogenerators, three combustion turbines and associated facilities (e.g., a control building, fuel oil tanks, a firewater tank and surface impoundments).

The combustion turbines use only distillate fuel oil. The plant property slopes gently southwest. Prevailing winds are from the west/northwest during most of the year at an average wind speed of about 11 miles per hour, with the strongest winds occurring during the summer.

Highway 880 is located five blocks east of the plant and major rail lines run just north of the plant along Embarcadero Street. The areas immediately surrounding the plant include industrial and commercial land uses. No sensitive receptors are located near the project site. The closest sensitive receptors are located north and northeast of Highway 880.

Existing Emissions

The plant's combustion emissions are dependent on each unit's emission rates and combined utilization. In 1993, Units 1 through 3 were utilized 0.3% of the time. Table 4.5.6 shows the 1993 criteria pollutant emissions from the plant and compares those values to the total county-wide emissions that year.

As indicated in Table 4.5.6, emissions from the Oakland Power Plant comprise a very small fraction of the total emissions in Alameda County. Estimated HAP pollutant emissions at the power plant are below the required threshold for permit applications (PG&E, 1996).

Because the plant typically operates less than 100 hours per year and estimated HAP pollutant emissions are below the required threshold for permit applications, no health risk assessments have been prepared.

TABLE 4.5.6: OAKLAND POWER PLANT, 1993 EMISSIONS COMPARED TO COUNTY-WIDE EMISSIONS /a/

Source	Emissions (TPY) ROG	CO	NO_x	SO_x	PM10
Oakland power plant /b/	1	4	5	7	1
Alameda County /c/					
- stationary	10,209	850	3,705	540	1,164
- area	7,982	20,922	2,135	91	26,948
- mobile	22,535	182,664	28,412	3,285	2,621
- natural	3,602	51	0	0	7
- total	44,328	204,487	34,252	3,916	30,733
Oakland Plant, % of County Total, excluding "natural" sources	<0.01	<0.01	0.01	0.2	<0.01

/a/ Source: Pacific Gas and Electric Company (PG&E), *Proponent's Environmental Assessment: Pacific Gas and Electric Company's Proposed Sale of Four Generating Plants*, November 15, 1996; minor modifications by Environmental Science Associates (1997)

/b/ Source: Calculated emissions based on emission factors for Hunters Point combustion turbines.

/c/ Source: California Air Resources Board, *California Emission Inventory Development and Reporting System -CEIDARS, 1993 Inventory*. PM10 is calculated as a percent of PM emissions, which might not represent actual emissions for particular sources. Data on organic gas emissions were for Total and Reactive Organic Compounds rather than Volatile Organic Compounds (VOC).

Existing and Future Controls

BAAQMD Regulation 9, Rule 9 applies to Oakland's three combustion turbines. Under this Rule, NO_x emissions from each of the three units is limited to 65 ppm. Rule 9 further limits the hours each unit may be operated to 877 hours per year. No retrofits are required for these units.

CHECKLIST ISSUES

a) Violation of Air Quality Standards

Regional Issues

As discussed in the setting, three air basins are affected by emissions from the power plants proposed for divestiture by PG&E. Each of the air basins is in attainment for the national ozone standard and nonattainment for the state ozone standard. Considerable effort is expended in the region to meet air quality standards, and in the case of electric power plants, controlling NO_X emission sources (a precursor to ozone formation) to reduce ozone levels is the primary focus of the air districts. Stationary sources subject to permit authority and complying with all applicable air district regulations generally will not be considered to have a significant air quality impact (MBUAPCD, 1995; BAAQMD, 1996).

Historically, the levels of generation of the plants to be divested have been largely determined by each plant's physical characteristics (e.g., capacity, availability and heat rate for converting fuel to electric power), variable costs relative to other resources, location and system reliability needs, and the operational constraints imposed by permit limitations or environmental regulations. Individual fossil plant generation, as measured by megawatt output or capacity factor, has varied substantially from year to year, largely as a function of the weather and hydro power availability, relative fuel costs and unscheduled plant outages. Although the incentives present in the future competitive market may differ from those under existing cost of service regulation, economics will continue to disfavor more extensive operation of the older, less-efficient fossil plants. Although generation patterns may shift among the plants, the generation from PG&E's sale plants, as a whole, may decline if out-of-state power penetrates the California market to a greater extent. On the other hand, if electric loads grow in the absence of new generation, generation could be somewhat higher (PG&E, 1996).

Studies of the restructured electricity market in California have pointed out the inherent uncertainties in trying to predict the level of operation of any individual generation unit. No generally accepted models currently can do the following:

- model the activity of the PX with unconstrained bidding;
- forecast levels of direct access to be served by dedicated plants; or
- reflect the coordinated, portfolio bidding and the rate of repowering and capacity addition that would be occasioned by multi-plant ownership (Weatherwax, 1997).

This was also pointed out by the California Energy Commission (CEC) in early consultation for this Initial Study. The CEC concluded that it is not possible to predict the change in generation that divestiture may cause (CEC, 1997). For the San Luis Obispo County APCD, it has been determined that the ozone attainment plans were written based on past operational levels prior to restructuring. Projections of air emissions from these power plants were based on the effective operating levels without restructuring. Although it is possible for PG&E to operate each of the three plants at levels higher than past operating levels now and after restructuring, a new owner would have the tendency to operate the power plants at a higher level than PG&E would be expected to operate the plant after restructuring if the facility is not divested. This could result in increased levels of ozone, or an increase in days exceeding the ozone standard. Although this is a potential negative impact of divestiture, it is considered less than significant for the following reasons:

- Even if divestiture results in increased emissions, as compared to those which would occur if PG&E retained the plants, the emissions would be within permitted levels and consistent with rules for power plant emissions, so that no significant impacts would result. Additionally, stationary sources subject to permit authority and complying with all applicable air district regulations generally will not be considered to have a significant air quality impact (BAAQMD, 1996).

- Increased operations do not necessarily mean increased emissions. If new owners operate at higher levels than utilities would under restructuring, they would likely be operating in a more constant mode. As such, they may have fewer shut downs and start ups, which have substantially higher emission rates than continuous operations.

- For a number of reasons, it appears that emissions will decline in the future, as a result of restructuring, source controls, and on-going air quality improvement efforts. Even if operations increase for these plants, future air pollutant emissions will probably be less than historical levels (prior to implementation of pollution abatement equipment) or current levels (because of future improvements contained in Rules 429 and 431). Air district rules (Rule 429 for Morro Bay power plant and Rule 431 for the Moss Landing power plant) are being modified to apply to non-utility owners, so that the stricter emission and concentration limits in these rules will apply to the new owners.

- Federal and state air pollution control laws provide for the establishment of national and state ambient air quality standards. These standards are set at levels intended to protect the public health and welfare. Areas that do not meet these standards must prepare and implement air quality plans designed to achieve the standards within time periods specified by law. These plans include estimates of future emissions from source categories in the area, as well as estimates of feasible emission reductions for those source categories.

- Existing California law requires that areas that do not meet the state air quality standard for ozone and other pollutants update their air quality plans every three years. As part of the plan update process, emission control measures can be revised or added as necessary to meet the changed conditions.

- Air quality plans are implemented by air district adoption of rules and regulations that require specific levels of emission controls from existing facilities. These rules are designed to achieve, to the extent feasible, the emission reductions estimated in the air quality plan.

Local Issues

With regard to significance thresholds, early analysis used the current *Bay Area Air Quality Management CEQA Guidelines* criteria, as these criteria are more stringent than those of the MBUAPCD. The BAAQMD criteria identify a project as having a significant air quality impact if the project would result in emissions of more than 80 lbs/day or 15 tons/year of NO_x, ROG, or PM10. A project contributing to CO concentrations exceeding the State Ambient Air Quality Standard of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour would be considered to have a significant impact. The *SLOAPCD CEQA Air Quality Handbook* identifies a project as having a significant air quality impact if the project would result in emissions of more than 25 lbs/day of NO_x, ROG, SO_X, or PM10 or 550 pounds per day of CO. As a result of subsequent consultation with the air districts, the preparers of this Initial Study no longer consider these criteria to be appropriate for the divestiture project. The *BAAQMD CEQA Guidelines* and *SLOAPCD CEQA Air Quality Handbook* indicate that the significance thresholds identified above address the impacts of indirect source emissions (such as motor vehicles traveling to and from the projects, which often represent the primary source of air pollutant emissions associated with project operations) on local and regional air quality. Also, the *BAAQMD CEQA Guidelines* state that total operation emissions evaluated under these thresholds should include all emissions from motor vehicle use associated with the project; there is no indication that emissions from existing facilities with air permits for stationary sources should be evaluated under these thresholds. Additionally, stationary sources subject to permit authority and complying with all applicable air district regulations generally will not be considered to have a significant air quality impact (BAAQMD, 1996).

Morro Bay

Annual Gross Capacity factors for 1991-95 ranged from 5.4 to 33.5% for Units 1 and 2 and from 17.0 to 48.8% for units 3 and 4 (PG&E, 1996). There is additional capacity at this plant that has not been used in recent years.

The San Luis Obispo APCD has indicated that the District's 1991 and updated 1995 Clean Air Plan (CAP) for the air basin was developed assuming the future operation of the Morro Bay Power Plant at historic levels (Allen, 1997). The District has also indicated that were the plant to

operate at maximum output under the existing permit, rules and regulations, the resulting emissions would exceed the emissions used in the CAP for meeting the ozone standard. The 1995 Clean Air Plan assumes that the NOx concentration limits in Rule 429 will be met, but it does not anticipate the plant operating at maximum output at these concentrations. Units 3 and 4 are assumed in the CAP to have SCRs installed by 2000. Units 1 and 2 are assumed to reduce emissions by 2003 with the installation of low-NO_x burners or SCRs. The possible increase in plant operation that could occur from divestiture, above what is expected from restructuring, would further jeopardize the future attainment of the ozone standards and would be a potentially significant impact resulting from divestiture.

Subsequent to identifying this potential impact in agency consultation for this Initial Study, the San Luis Obispo Air Pollution Control District and PG&E have agreed on mass emission caps that the District will propose for incorporation into Rule 429. The cap would limit plant NOx emissions to 3.5 tons per day beginning on December 31, 2000, and to 2.5 tons per day beginning December 31, 2002. The District anticipates amending Rule 429 in September 1997, to add the daily emission caps and expand applicability of the Rule's limits to all boilers used for electric power generation (clarifying that the Rule applies to non-utilities).

To assure that the NOx emission concentration limits and daily emission caps will apply to a new owner of the Morro Bay plant, PG&E has applied to the District for modifications to the plant's permits to operate. The requested modifications would incorporate into the permits to operate the emission limits described above for the proposed amendment to Rule 429.

On June 25, 1997, the San Luis Obispo Air Pollution Control District indicated that agreement was reached on proposed changes to Draft Rule 429 (resulting in the terms identified above) and that the APCD considers this accord and its subsequent implementation to be adequate mitigation of air quality issues related to divestiture, negating the need for an EIR. (SLOAPCD, 1997)

Mitigation Measures

4.5.a.1 If the SLOAPCD has not adopted the planned revisions to Rule 429 (as discussed above) prior to sale of the Morro Bay power plant, then:

To assure that the NOx emission concentration limits and daily emission caps will apply to a new owner of the Morro Bay Power Plant, regardless of the status of Rule 429 modifications, PG&E will request that the Air District complete modifications to the plant's permits to incorporate emission limits into the permits to operate in substantially the form and stringency described in Draft Rule 429.

PG&E agrees that the transfer of title for Morro Bay Power Plant will not occur until either Rule 429 or the plant's permit to operate has been so modified.

Monitoring Action: PG&E provides the CPUC mitigation monitor with a copy of either the revised Rule 429 or the modified permit to operate.
Responsibility: CPUC
Timing: At least 3 business days prior to the transfer of title.

Conclusion

With the implementation of the mitigation measure identified above, the impact would be less than significant.

Moss Landing

Annual Gross Capacity factors for 1991-95 ranged from 48.3 to 81.2% for Units 6 and 7 (PG&E, 1996). There is additional capacity at this plant that has not been used in recent years.

The Monterey Bay Unified APCD has indicated that the Air Quality Management Plan for the air basin was developed assuming future operations of the Moss Landing Power Plant at levels based on historic data (1990 baseline) with an assumed plant usage growth factor (Nunes, 1997). The District has also indicated that since the plant is limited by Rule 431 for NO_x emissions on a mass basis, its attainment strategy for NO_x will be met. Units 6 and 7 have already installed low-NO_x burners and are assumed in the Plan to have SCRs installed by 2000-2001 or equivalent technology to comply with MBUAPCD rules.

If Rule 431 does not apply to the new owner of the Moss Landing Power Plant, potentially significant increases in NOx emissions could occur as a result of the project. New owners may not be bound by the emissions limits or concentration limits required in the future.

4.5.a.2 Prior to sale of the Moss Landing power plant the following action must be implemented:

To assure that the NOx emission concentration limits and daily emission caps will apply to a new owner of the Moss Landing power plant regardless of the status of Rule 431 modifications, PG&E will request that the Air District complete modifications to the plant's permits to incorporate emission limits to the permits to operate in substantially the form and stringency described in Rule 431.

Monitoring Action: PG&E provides the CPUC mitigation monitor with a copy of either the revised Rule 431 or the modified permit to operate.
Responsibility: CPUC
Timing: At least 3 business days prior to the transfer of title.

Conclusion

With the implementation of the mitigation measure identified above the impact would be less than significant.

Oakland

Oakland has three units, which are combustion turbine generators. Annual Gross Capacity factors for these units for 1991-95 ranged from 0.1 to 0.3% (PG&E, 1996). The number of hours the plant may be operated is limited by BAAQMD Regulation 9, Rule 9 to 877 hours per year.

The BAAQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Oakland Power Plant at historic levels. Regulation 9, Rule 9 imposes a limit on the annual operational hours of the plant. Regardless of ownership, plant operations would still be subject to the operational restrictions of Regulation 9, Rule 9. No air quality impact would result from divestiture of this plant.

b) Exposure of Sensitive Receptors

As identified in the Local Setting presented above, there are sensitive receptors situated in close proximity to two of the plants to be sold (Moss Landing and Morro Bay). The closest sensitive receptors to the Oakland Power Plant are located north and northeast of Highway 880, over 600 feet from the project site.

Local Issues

The project would have the potential to increase local pollutant concentrations in the vicinity of the power plants. While keeping within permit limits, a new operator, seeking to maximize revenue and profits from the plants to be divested, would have a tendency to increase operations above those expected if PG&E were to retain the plants in the restructured electric industry. Proportionately, this could result in the exposure of sensitive receptors in the general area of the power plants to higher pollutant concentrations of criteria pollutants as well as hazardous air pollutants (HAPs). Criteria air pollutants were discussed in detail in checklist item a) above. This section will focus upon the potential for impacts from HAPs.

The types and concentrations of HAPs emitted during power plant operations are dependent on the plants' fuel mix and level of operation. Increasing fuel oil use would increase concentrations of a large number of hazardous air pollutants, including nickel and hexavalent chromium. However, while the foreseeable scenarios of divestiture include a tendency for increased use of the power plants, no increase in fuel oil use is expected as a result of divestiture.

For this reason, the project would not result in substantial increases in hazardous air pollutant emissions. Therefore, the project would not result in any substantial increase in human health risk at any of the sites.

Conclusion

The project would not result in substantial additional exposure to sensitive receptors to HAPs; therefore, the impact would be less than significant.

c) Change in Climate

The project would not significantly alter air movement, moisture, temperature, or cause any change in climate at any of the three power plants to be divested and their vicinity. Typically, changes in these climatological factors are associated with development projects that involve the construction of very large structures that can affect surface wind conditions or large reservoirs that can affect local relative humidity and temperature. The project by itself would not result in the types of development that would significantly affect regional air movement, moisture, temperature, or climate. The transfer of ownership may require some new construction, which would likely be limited to activities necessary to separate the divested generating units from on-site transmission and distribution equipment, ownership of which would be retained by PG&E.

Conclusion

The project will not impact air movement, moisture, temperature, or cause any change in climate.

d) Odors

The perception of odor is a physio-psychological response to the inhalation of an odoriferous chemical substance. Unpleasant odors may affect our sense of well-being. Responses to a variety of malodors can include nausea, vomiting, headaches, coughing, sneezing, induction of shallow breathing, disturbed sleep, appetite disturbance, sensory irritation, annoyance, and depression. Effects may be physiological, psychological, or both. The severity of odor impacts hinges on a number of factors, including the nature, frequency and intensity of the source; wind speed and direction; and the sensitivity and proximity of nearby sensitive receptors to the odor source.

Regional Issues

The project would have no impact on odors at a regional level.

Local Issues

The project would not create objectionable odors in the vicinity of the three power plants to be divested. Odors from fuel combustion have decreased in recent years due to regulations that have lowered the allowable quantity of sulfur in diesel fuel.

Furthermore, while it is a foreseeable scenario that divestiture will result in a tendency for increased operations, the increased fuel combustion is assumed to be from natural gas, which generates negligible odors.

Conclusion

Because the project would not create objectionable odors, there would be no impact.