6.2 AIR QUALITY

The Canyon Power Plant (CPP) will consist of a nominal 200-megawatt (MW) simple-cycle plant, using four natural gas-fired General Electric LM 6000PC Sprint combustion turbines and associated infrastructure. The project site is located at 3071 East Miraloma Avenue, in a City of Anaheim (COA)-designated industrial zone.

The CPP and associated construction laydown areas will be located on approximately 10 acres of disturbed land located at 3071 East Miraloma Avenue. Main access to the CPP site will be at the southeast corner of the project site from East Miraloma Avenue. A second gated entrance will be accessible via East Miraloma Avenue with a third gate off the alley to the east of the site. (Total land disturbance will be approximately 10 acres.)

The existing CPP site is predominantly paved (concrete and asphalt). Principal land use for the site was food catering for a fleet of approximately 75 to 100 trucks, formerly operated by Orange County Food Service. Onsite structures include a kitchen/warehouse building, maintenance garage (9 service bays), truck wash facility (5 bays), two ice manufacturing buildings, several storage sheds, and an outdoor truck repair shop which includes storage lockers and petroleum products, all of which will be demolished as a part of the CPP project.

The following activities are not part of the CPP project:

- Three residential houses along East Miraloma Avenue have recently been removed and are not a part of this Application for Certification (AFC). The COA Risk Manager and Fire Department determined that the residential units posed security and fire risks, and therefore they were removed. A letter from the COA Risk Manager to the Public Utilities Department is included in Appendix Q.
- Soil remediation activities associated with Phase I, Phase II, and Supplemental Phase II reports. The COA, now as owner of the property, has determined that it will conduct any soil remediation activities to limit its environmental liability for future uses of the site. These activities will occur regardless of whether the CPP project obtains a CEC license.
- Installation of a temporary, 8-foot-high security fence around the perimeter of the entire 10-acre site.
- General maintenance activities including site cleanup and trash removal.

The project will include the construction and/or installation of the following components:

- **Proposed CPP site.** In addition to the four natural gas-fired GE LM 6000PC Sprint gas turbines, the plant will include generator step-up transformers (GSUs), a 69 kilovolt (kV) switchyard, onsite fuel gas compressors, a gas pressure control and metering station, a packaged chilled water system for combustion turbine engine (CTG) power augmentation

with associated heating ventilation and air conditioning (HVAC)-type four-cell cooling tower, selective catalytic reduction system (SCR) emission control systems, and other associated plant infrastructure.

- **Gas Pipeline.** Natural gas will be provided via a new 3,240-foot-long, 12-inch, 350 pounds per square inch gauge (psig) gas line owned and maintained by SoCal Gas Company (SCGC), which will be connected to new onsite fuel gas compressors that will be part of the CPP facility. From the CPP site, this new pipeline will run approximately 580 feet east in East Miraloma Avenue to Kraemer Boulevard, then north 2,660 feet in Kraemer Boulevard to East Orangethorpe Avenue to connect into SCGC's transmission line L-1218 in East Orangethorpe Avenue. (Total land disturbance will be 0.219 acre.)
- **Process water.** Process water for the project will be recycled water supplied from the Orange County groundwater replenishment system (GWRS) via a new 2,185-foot-long, 14-inch pipeline utilizing a new offsite booster pump station. The water pipeline will run east of the site on the north side of East Miraloma Avenue for 1,850 feet to the new pumping station located north of the curb in the COA-owned easement of East Miraloma Avenue, then north 210 feet in new easement from the Orange County Water District (OCWD), then 125 feet easterly in new easement to the GWRS line on the western side of the Carbon Canyon Diversion Channel. There, it will connect to the 60-inch-diameter GWRS recycled water line at an existing 36-inch stub up. (Total land disturbance for both line and pumping station will be 0.246 acre.)
- **Electrical interconnection.** Underground 69 kV cables will connect from GSUs to the onsite switchyard, which will use gas-insulated switchgear (GIS). There will be four new underground 69 kV circuits leaving the site. Two will proceed underneath and to the south side of East Miraloma Avenue approximately 100 feet to rise up and connect to the existing 69 kV overhead Vermont-Yorba lines via two new transition structures. The second two 69 kV underground circuits will proceed eastward approximately 4,000 feet in East Miraloma Avenue, turn south on Miller, then proceed approximately 3,000 feet to connect to the Dowling-Yorba 69 kV line at East La Palma Avenue. (Total land disturbance for both sets of cables will be 0.489 acre.)
- **Communications.** Fiber optic cable will run in a common trench with the approximately 7,000-foot 69 kV electric cables, where it will tie into existing underground fiber optic cable for the supervisory control and data acquisition (SCADA) system.

This analysis of the potential air quality impacts of the Canyon Power Plant (CPP) has been conducted according to California Energy Commission (CEC) power plant sitting requirements. It also addresses South Coast Air Quality Management District (SCAQMD) permitting requirements for Determination of Compliance/Permit to Construct (DOC/PTC). The analysis is organized as follows:

- Section 6.2.1, Affected Environment, describes elements of the local environment surrounding the proposed project that are relevant to evaluation of the air quality impacts. These include topography, climate, and existing air quality. The most representative meteorological data, including wind speed and direction, temperature, relative humidity, and precipitation, and the most representative recent ambient concentration measurements for criteria air pollutants in the proposed project vicinity are summarized. Air pollutants emitted by the project may travel in the atmosphere over long distances, but for practical purposes, the project air quality study area can be considered to be the South Coast Air Basin, which includes portions of Los Angeles, Riverside and San Bernardino counties and all of Orange County.
- Section 6.2.2, Environmental Consequences, evaluates the maximum potential air quality impacts due to the proposed project's emissions of nitrogen oxides (NO_X), carbon monoxide (CO), sulfur oxides (SO_X), volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Estimated emissions of these pollutants are presented for the construction phase of the proposed project, as well as for operation of the installed equipment over a full range of operating modes, including commissioning, startups and shutdowns, and normal operation with operable pollution-control systems. The modeling analysis conducted for nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), and PM_{10} is presented; the results show that the proposed project, with the planned emission control systems, will neither cause an exceedance of the California and National Ambient Air Quality Standards (CAAQS and NAAQS), nor contribute significantly to an existing exceedance.
- Section 6.2.3, Cumulative Impacts Analysis and Protocol, addresses the cumulative impacts of the proposed project's emissions with other existing sources on and near the proposed project site and the combined impacts of these sources with other potential new sources of air pollution in the area around the proposed project site.
- Section 6.2.4, Mitigation Measures, describes the proposed project emission offsets strategy, including emission reduction credits (ERCs) that are proposed to offset proposed project sources.
- Section 6.2.5, Best Available Control Technology Analysis, provides an analysis of best available control technology (BACT) for gas-fired turbines in a simple-cycle configuration and explains how the use of selective catalytic reduction (SCR) with ammonia injection and an oxidation catalyst will meet NO_X and CO BACT requirements, respectively. Proposed BACT for a black start engine is also addressed.
- Section 6.2.6, Laws, Ordinances, Regulations, and Standards (LORS), describes all applicable air quality laws, ordinances, regulations, and standards.

- Section 6.2.7, Involved Agencies and Agency Contacts, lists the agency personnel contacted during preparation of the air quality assessment.
- Section 6.2.8, Permits Required and Permitting Schedule, lists the air quality permits required for the proposed project and provides a permit schedule.
- Section 6.2.9, References, lists the references used to conduct the air quality assessment.

Some air quality data are presented in other sections of this AFC, including an evaluation of toxic air pollutants (see Section 6.16, Public Health) and information related to the fuel characteristics, heat rate, and expected capacity factor of the proposed facility (see Section 3.0, Facility Description and Location).

6.2.1 Affected Environment

This section describes the regional climate and meteorological conditions that influence transport and dispersion of air pollutants and the existing air quality within the proposed project region. The monitoring data presented in this section are considered to be representative of the proposed project site.

The proposed project will be a newly constructed peaker power plant located in northeastern Anaheim, California, at 3071 East Miraloma Avenue. The 10-acre proposed project site is roughly 3.25 miles northeast of downtown Anaheim and 25 miles southeast of downtown Los Angeles. The proposed project vicinity is a developed, industrial urban area within Orange County, and is accessible from East Miraloma Avenue. Approximately 5.6 acres of the 10-acre site will be used for the CTGs and ancillary equipment, while the remaining area will be used for the laydown area during construction.

The proposed project site is located in the South Coast Air Basin, which is part of the SCAQMD's jurisdiction. Nearby towns include Placentia, Fullerton, and Yorba Linda. The site is located approximately three quarters of a mile northeast of the CA-91 (Riverside Freeway) and CA-57 (Orange Freeway) interchange. East Miraloma Avenue runs along the south side of the property, while north-south Kraemer Boulevard lies 0.05 miles to the east of the eastern property boundary. Figures 6.2-1 and 3-7 show the general vicinity and a plot plan showing the proposed layout of the equipment for the operational the CPP facility.

6.2.1.1 Climate and Meteorology

Meteorological (short-term) and climatological (long-term) conditions influence ambient air quality in the project vicinity. The north central portion of Orange County is in the southwestern part of the South Coast Air Basin (the Basin). The project area has a Mediterranean climate characterized by warm, dry summers and mild winters, and is dominated by a semi-permanent high-pressure cell over the Pacific Ocean. This high-pressure cell (Pacific High) maintains clear skies throughout most of Southern

California for much of the year by steering wet weather systems to the north. As winter approaches in the Northern Hemisphere, the semi-permanent Pacific High off the coast of California tends to weaken and move southward, which allows wet weather systems coming from the northern Pacific Ocean to enter Southern California. This is the mechanism that brings most of the precipitation in the winter (October through April). During the summer, the Orange County area is under the influence of the stronger Pacific High, which tends to keep wet weather systems to the north, and bring in warmer, dryer air from the desert southwest. The Pacific High drives the dominant onshore circulation and also helps create two types of temperature inversions (subsidence and radiation) that contribute to local air quality degradation.

Subsidence inversions occur during the warmer months, as descending air associated with the Pacific High comes into contact with cool marine air. During the summer, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the upwards dispersion of pollutants in the marine layer. Light winds during the summer limit ventilation. Furthermore, the intense sunlight characteristic of this time of year triggers the photochemical reactions that produce ozone. Radiation inversions typically develop on winter nights with low wind speeds, when air near the ground cools by radiation and the air aloft remains relatively warm. These inversions act as lids to trap ground-level pollutants that are emitted into them, thus creating shallow inversion layers containing elevated pollutant concentrations, until later in the day when surface heating breaks up the inversions.

During the dry season (from May to September), and to a lesser degree during winter, a daytime sea breeze blowing onshore and a nighttime land breeze moving offshore typify the daily circulation pattern in the Basin. Generally, the onshore sea breeze is approximately twice as strong as the offshore land breeze, and average summer wind speeds are slightly higher than winter wind speeds. Throughout the year during the night, a drainage flow exists as cool air from the nearby mountain slopes drains down and back toward the ocean.

On occasion during the fall and winter, a high-pressure system develops over Nevada and Utah and pushes air westward over the San Gabriel and San Bernardino mountains. The resulting wind is known as a Santa Ana wind. Santa Ana winds can be very strong, with speeds through mountain passes sometimes exceeding 60 miles per hour (mph), and are usually warm and dry. They tend to clear the Basin of accumulated air pollutants but can also cause dust storms and high particulate levels.

Air in the Basin is generally moist, due to presence of a marine air layer. Relative humidity usually ranges from 70 percent to 80 percent during the night and from 50 percent to 60 percent in the day throughout the year.

Atmospheric stability and mixing heights are also important parameters in the determination of pollutant dispersion. Atmospheric stability reflects the degree of atmospheric turbulence and mixing. In general, the less stable an atmosphere, the greater the turbulence, which results in more mixing and better dispersion. Atmospheric pressure decreases with height above the earth's surface; as a result, air temperature also generally decreases with height. In the absence of other influences, air that is warmer than ambient air (that is, warmer than the air around it), such as heated exhaust from an industrial stack or vehicle tailpipe, would tend to rise indefinitely. However, the vertical dispersion of air pollutants in the Basin is limited by the presence of a persistent temperature inversion (a temperature increase with altitude) in the lower atmosphere. Warm air released at ground level will tend to rise as long as the surrounding air is cooler, but when the rising air encounters a temperature inversion, it can no longer rise and becomes trapped below the layer of warmer air. The altitude at which air temperature begins to increase with altitude is the base of the inversion and defines the local mixing height. The mixing height limits the volume of air that is available for mixing and dilution of pollutants emitted near the ground. The lower the base of the inversion and the mixing height, the smaller the volume of air available for dilution of air pollutants; low mixing heights, therefore, lead to higher ambient concentrations of air pollutants near the earth's surface.

Usually, inversions are lower before sunrise than during daylight hours. The mixing height normally increases during the day as the base of the inversion erodes because of surface heating. Along the coast of southern California, relatively cool surface air temperatures, coupled with warm, dry, subsiding air from aloft, produce early morning inversions approximately 87 percent of the time. The average occurrence of ground-based inversions (in which the base of the inversion is at ground level and pollutants emitted at ground level are trapped close to ground level) is 11 days per month, ranging from 2 days in June to 22 days in December and January. Elevated inversions, in which the base of the inversion may be up to 2,500 feet above mean sea level (MSL), occur approximately 20 days each month. Mixing heights of 3,500 feet above MSL or less occur approximately 191 days each year.

Air pollutants from the South Coast Air Basin are transported in both directions between the SCAQMD and the coastal portions of Ventura and Santa Barbara counties in the South Central Coast Air Basin. The Basin also receives air pollutants from oil and gas development operations on the outer continental shelf. Both the Antelope Valley and the Coachella Valley Planning Area are impacted by pollutant transport from the South Coast Air Basin. In addition, pollutant transport occurs between the Basin and the Mojave Desert, Ventura County, and San Diego County.

Although marine air generally flows into the Anaheim area from the Pacific Ocean, the topographic features in the region around the CPP site restrict air movement. The San Gabriel and Santa Ana mountains hinder wind access into the valley from the northwest, north, and southwest, and the San Bernardino and San Jacinto mountains are significant

barriers to the northeast, east, and southeast. These topographic features create a weak air flow through the valley, which is frequently blocked vertically by temperature inversions. This weak air flow contributes to stagnant conditions, which can lead to high pollutant concentrations.

Long-term average temperature and precipitation data have been collected at the Anaheim station, the nearest surface meteorological station to the proposed project site, and are presented in Table 6.2-1. The data indicate that August is usually the warmest month of the year. In the fall and spring, the afternoon temperatures are warm (in the 70s and 80s), while nights are cooler (in the 50s and 60s). In winter during the day, the mean high temperature generally gets to around 70 degrees, and drops to the mid to upper 40s at night. The coldest months are usually December and January. The annual average rainfall is approximately 13.1 inches, with 10.91 inches falling between November and March.

TABLE 6.2-1
CLIMATOLOGICAL NORMALS – HISTORICAL AVERAGE TEMPERATURE AND PRECIPITATION DATA (1989-2007) FOR ANAHEIM, CALIFORNIA

Month	Highest Mean Temperature (ºF)	Lowest Mean Temperature (ºF)	Mean Precipitation (in.)
January	69.7	47.3	2.76
February	70	48.3	3.8
March	72	50.5	2
April	74	52.6	0.85
May	76.7	57.2	0.36
June	80.2	60.5	0.16
July	85	64.1	0.04
August	86.9	64.3	0.01
September	85.9	62.4	0.08
October	80.6	57.5	0.69
November	75	51.5	0.82
December	70.1	46.9	1.53
Annual	77.2	55.3	13.1

Source: Western Regional Climate Center, Desert Research Institute, Las Vegas, NV. http://www.wrcc.dri.edu

Appendix B-1 contains seasonal windroses, which show the predominant wind patterns as documented by 5 years of hourly observations at the John Wayne Airport (about 12 miles south of the CPP site). The annual windrose at the John Wayne Airport for the years 2002 through 2006 is provided on Figure 6.2-2. The seasonal windroses show that the dominant

wind direction annually and in each season is southwest, but the frequency of winds in the sector between south and west varies considerably over the year. Winds are least variable during the summer, when the combined frequency of flow from this sector is above 55 percent, and most variable during winter, when the wind is from this sector less than 25 percent of the time. The frequency of northeasterly winds increases to 13 percent during the winter, where winds from this direction often occur during winter night and early morning hours. Winds from the north and northwest are almost completely absent during all seasons. Wind speeds are often calm or light. Average wind speeds are highest during summertime afternoons, and are lowest in the winter during the late night and early morning hours when the wind does not blow from the northeast.

6.2.1.2 Existing Air Quality

Ambient air quality standards have been set by both the federal government and the State of California to protect public health and welfare with an adequate margin of safety. Pollutants for which NAAQS or CAAQS have been established are often referred to as "criteria" air pollutants. This term is derived from the comprehensive health and damage effects review that culminates in pollutant-specific air quality criteria documents, which precede the establishment of NAAQS and CAAQS. These standards are reviewed on a legally prescribed frequency and revised as warranted by new health and welfare effects data. Each NAAQS or CAAQS is based on a specific averaging time over which the concentration is measured. Different averaging times are based upon protection against short-term, high-dosage effects or longer-term, low-dosage effects. Most NAAQS may be exceeded no more than once per year. CAAQS are not to be exceeded.

The ambient air quality in Orange County is monitored at a number of permanent air quality monitoring stations operated by SCAQMD and California Air Resources Board (CARB). The monitoring stations within Orange County that are closest to the proposed project site are the Anaheim-Pampas Lane station, located approximately 4.8 miles west-southwest of the proposed project site, and the La Habra station, located about 6.8 miles to the northwest of the proposed site. The Anaheim-Pampas Lane station measures all criteria pollutant concentrations except sulfur dioxide (SO_2) and lead (Pb). The La Habra station only measures ozone, carbon monoxide (CO), and nitrogen dioxide (NO_2). The closest station that measures SO_2 is the Costa Mesa station, located approximately 13.2 miles south southwest of the project site. This station also measures CO, NO_2, and ozone. The Mission Viejo station is the next closest station (after the Anaheim-Pampas Lane station) that measures PM_{10} and $PM_{2.5}$. The Mission Viejo station is about 19.1 miles south southeast of the CPP site. The closest station that measures lead is the Pico Rivera station, located approximately 15.8 miles northwest of the proposed project site.

Therefore, the criteria pollutants monitored at these stations include ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and lead (Pb). Air quality measurements taken at these stations are presented in

Tables below. For the air quality impact analysis described in Section 6.2.2.3, the maximum recorded concentration from the most recent 3 years (2004-2006) at any of these monitoring stations were used to represent peak background air quality levels.

6.2.1.2.1 Ozone. On June 15, 2005 the 1-hour federal ozone standard was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. EAC areas are those that do not yet have an effective date for their 8-hour designations. This happened by virtue of 40 CFR 50.9(b). Since there are no EAC areas in California, the 1-hour federal ozone standard is no longer in effect in any California air basin.

Concentration data for ozone in parts per million (ppm) that were recorded within the most recent three years at the Anaheim-Pampas Lane, Costa Mesa, and La Habra monitoring stations are summarized in Tables 6.2-2A, 6.2-2B, and 6.2-2C.

TABLE 6.2-2A
CONCENTRATION DATA SUMMARY FOR OZONE
AT ANAHEIM-PAMPAS LANE STATION

Year	Highest Concentration for O_3 (ppm)		Number of Days Exceeding Standards	
	1-hour	8-hour	Federal 8-hr	State 1-hr
2006	0.113	0.088	1	6
2005	0.095	0.077	0	1
2004	0.120	0.097	8	14

The federal 8-hour average ozone standard is 0.08 ppm. On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. The project site is not located within one of the EAC areas that are still subject to the 1-hour ozone standard.
The state ozone standards are 1-hour average (0.09 ppm) and 8-hour average (0.07 ppm).
Monitoring site address: 1630 W. Pampas Lane, Anaheim, CA.
Source: California Air Resources Board (CARB) – California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

The 1-hour state ozone CAAQS of 0.09 ppm was exceeded each year for the past 3 years at the Anaheim-Pampas Lane monitoring station (14 times in 2004). The Costa Mesa Station exceeded the 1-hour state ozone standard twice in 2004, but did not exceed the state standards in 2005 or 2006. The La Habra station did not exceed the state standard in 2005, but recorded values above the 1-hour state ozone standards 6 times in 2004 and 8 times in 2006.

The federal 8-hour ozone NAAQS of 0.08 ppm has also been exceeded occasionally at all three monitoring stations. The federal standard requires maintaining 0.08 ppm as a 3-year average of the fourth-highest daily maximum values. Therefore, the number of days that the maximum concentration exceeds the standard concentration is not the number of violations of the standard for the year. The 8-hour ozone NAAQS was exceeded at the Anaheim-

TABLE 6.2-2B
CONCENTRATION DATA SUMMARY FOR OZONE
AT COSTA MESA-MESA VERDE DRIVE STATION

Year	Highest Concentration for O_3 (ppm)		Number of Days Exceeding Standards	
	1-hour	8-hour	Federal 8-hr	State 1-hr
2006	0.074	0.062	0	0
2005	0.085	0.072	0	0
2004	0.104	0.087	1	2

The federal 8-hour average ozone standard is 0.08 ppm. On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. The project site is not located within one of the EAC areas that are still subject to the 1-hour ozone standard.
The state ozone standards are 1-hour average (0.09 ppm) and 8-hour average (0.07 ppm).
Monitoring site address: 2850 Mesa Verde Drive, Costa Mesa, CA.
Source: California Air Resources Board (CARB) – California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

TABLE 6.2-2C
CONCENTRATION DATA SUMMARY FOR OZONE
AT LA HABRA STATION

Year	Highest Concentration for O_3 (ppm)		Number of Days Exceeding Standards	
	1-hour	8-hour	Federal 8-hr	State 1-hr
2006	0.146	0.114	4	8
2005	0.094	0.075	0	0
2004	0.099	0.079	0	6

The federal 8-hour average ozone standard is 0.08 ppm. On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. The project site is not located within one of the EAC areas that are still subject to the 1-hour ozone standard.
The state ozone standards are 1-hour average (0.09 ppm) and 8-hour average (0.07 ppm).
Monitoring site address: 621 W. Lambert, La Habra, CA.
Source: California Air Resources Board (CARB) – California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

Pampas Lane Station monitoring station once in 2006, 8 times in 2004, and was not exceeded in 2005. At the Costa Mesa station, the 8-hour ozone NAAQS was exceeded once in 2004, but was not exceeded in 2005 or 2006. The La Habra station exceeded the 8-hour federal ozone standards 4 times in 2006, but was below this standard in 2005 and 2004. As supported by the data in Table 6.2-2a, the proposed project site is located in an area that is in nonattainment of the state 1-hour ozone standard.

6.2.1.2.2 <u>Particulates</u>. PM_{10} Particulates in the air are caused by a combination of: 1) windblown fugitive dust or road dust; 2) particles emitted directly from combustion

sources (primarily carbon particles); and 3) organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and nitrogen oxides. Respirable particulate matter is referred to as PM_{10}, which has a diameter of 10 microns or less. It can contribute to increased respiratory disease, lung damage, cancer, premature death, as well as reduced visibility, and surface soiling. In 1987, the United States Environmental Protection Agency (USEPA) adopted standards for PM_{10} and phased out the previous standards that had been in effect for total suspended particulate (TSP) standards that had been in effect until then.

The South Coast Air Basin is designated as serious nonattainment for PM_{10}. Concentration data for this pollutant in micrograms per cubic meter ($\mu g/m^3$) that were recorded within the most recent three years at the Anaheim-Pampas Lane and Mission Viejo monitoring stations are summarized in Tables 6.2-3A and 6.2-3B. The federal standard uses a gravimetric/beta attenuation method for measuring particulate matter, while the state standard uses an inertial separation and gravimetric analysis method. The tables show that the 24-hour average CAAQS for PM_{10} of 50 $\mu g/m^3$ is frequently exceeded in the vicinity of the proposed project site. The federal 24-hour average PM_{10} NAAQS of 150 $\mu g/m^3$ was not exceeded at any time in the last three years at either the Anaheim-Pampas Lane Station or Mission Viejo station, with a maximum recorded 24-hour PM_{10} concentration of 104 $\mu g/m^3$ in 2006. The annual PM_{10} data are also presented in Tables 6.2-3a and 6.2-3b. As shown by these two tables, the Basin has not been in attainment of the state PM_{10} standards during any of the last three years.

TABLE 6.2-3A
CONCENTRATION DATA SUMMARY FOR PM_{10}
AT ANAHEIM-PAMPAS LANE STATION

Year	Highest 24-hour Concentration for PM_{10} ($\mu g/m^3$)		Annual Arithmetic Mean for PM_{10} ($\mu g/m^3$)	Number of Days Exceeding Standards	
	Federal	State	State	Federal 24-hour	State 24-hour
2006	104	103	33.3	0	7
2005	65	65	28.2	0	3
2004	74	74	33.9	0	7

The federal PM_{10} standard is 24-hour average: 150 $\mu g/m^3$.
The state PM_{10} standards are annual arithmetic mean: 20 $\mu g/m^3$ and 24-hour average: 50 $\mu g/m^3$.
Monitoring site address 1630 W. Pampas Lane, Anaheim, CA.
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

Prior to July 2003, the annual geometric mean PM_{10} concentration was referred to as the state annual average. Since then, the state annual average has been changed to match the federal standards (i.e., annual arithmetic mean), which is called the national annual average and calculated as the arithmetic average of the four arithmetic quarterly averages. The federal annual PM_{10} standard was revoked by the USEPA in 2006 due to a lack of evidence linking

TABLE 6.2-3B
CONCENTRATION DATA SUMMARY FOR PM_{10}
AT MISSION VIEJO STATION

Year	Highest 24-hour Concentration for PM_{10} ($\mu g/m^3$)		Annual Arithmetic Mean for PM_{10} ($\mu g/m^3$)	Number of Days Exceeding Standards	
	Federal	State	State	Federal 24-hour	State 24-hour
2006	57	56	23	0	1
2005	41	41	26	0	0
2004	47	46	30	0	0

The federal PM_{10} standard is 24-hour average: 150 $\mu g/m^3$.
The state PM_{10} standards are annual arithmetic mean: 20 $\mu g/m^3$ and 24-hour average: 50 $\mu g/m^3$.
Monitoring site address: 26081 Via Pera, Mission Viejo, CA.
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

health problems to long-term exposure to coarse particle pollution. However, the measured annual geometric and arithmetic mean concentrations recorded at the nearest air monitoring stations to the project site have consistently been above the CAAQS for PM_{10} of 20 $\mu g/m^3$.

The maximum annual arithmetic mean concentration recorded at Anaheim-Pampas Lane station was 33.9 $\mu g/m^3$ in 2004.

$PM_{2.5}$ fine particulates result from fuel combustion in motor vehicles and industrial sources, residential and agricultural burning, and from atmospheric reactions involving NO_X, SO_X, and organics. Fine particulates are referred to as $PM_{2.5}$ and have a diameter equal to or less than 2.5 microns. The potential health effects of $PM_{2.5}$ are considered more serious than those of PM_{10}. In 1997, EPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. The standard regulating the 3-year average of the 98th percentile of 24-hour PM_{10} concentrations (35 $\mu g/m^3$) became effective on December 17, 2006.

$PM_{2.5}$ data is presented in Tables 6.2-4A and 6.2-4B for the Anaheim-Pampas Lane and Mission Viejo air quality monitoring stations. The South Coast Air Basin is designated as serious nonattainment for $PM_{2.5}$. Both stations show that the federal 24-hour average NAAQS of 35 $\mu g/m^3$ is exceeded frequently in the vicinity of the proposed project. The highest 24-hour $PM_{2.5}$ concentration of 58.9 $\mu g/m^3$ was measured at the Anaheim-Pampas Lane monitoring station during 2004. Note that the $PM_{2.5}$ 24-hour standard was changed from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in October of 2006; thus, the monitored values were below the federal standard that was in effect at that time. The annual average $PM_{2.5}$ data for the same monitoring stations are also presented in these tables. The annual arithmetic mean concentrations at both monitoring stations are above the California $PM_{2.5}$ ambient air quality standard of 12 $\mu g/m^3$. The maximum annual arithmetic mean concentration recorded at Anaheim-Pampas Lane station was 17.0 $\mu g/m^3$ in 2004, which is also above the federal annual $PM_{2.5}$ NAAQS of 15 $\mu g/m^3$.

TABLE 6.2-4A
CONCENTRATION DATA SUMMARY FOR $PM_{2.5}$
AT ANAHEIM-PAMPAS LANE STATION

Year	Highest 24-hour Concentration for $PM_{2.5}$ ($\mu g/m^3$)	Annual Arithmetic Mean for $PM_{2.5}$ ($\mu g/m^3$)	
	Federal	Federal	State
2006	56.2	14	NA
2005	54.7	14.7	NA
2004	58.9	17	19

The federal $PM_{2.5}$ standards are 24-hour average (35 $\mu g/m^3$) and annual arithmetic mean (15 $\mu g/m^3$).
The state $PM_{2.5}$ standard is annual arithmetic mean: 12 $\mu g/m^3$.
Monitoring site address: 1630 W. Pampas Lane, Anaheim, CA
Source: California Air Resources Board-California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)
NA = There were insufficient data available to determine the value.

TABLE 6.2-4B
CONCENTRATION DATA SUMMARY FOR $PM_{2.5}$
AT MISSION VIEJO STATION

Year	Highest 24-hour Concentration for $PM_{2.5}$ ($\mu g/m^3$)	Annual Arithmetic Mean for $PM_{2.5}$ ($\mu g/m^3$)	
	Federal	Federal	State
2006	46.9	NA	11
2005	35.3	10.6	11
2004	49.4	12	15

The federal $PM_{2.5}$ standards are 24-hour average (35 $\mu g/m^3$) and annual arithmetic mean (15 $\mu g/m^3$).
The state $PM_{2.5}$ standard is annual arithmetic mean: 12 $\mu g/m^3$.
Monitoring site address: 26081 Via Pera, Mission Viejo, CA
Source: California Air Resources Board-California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)
NA = There were insufficient data available to determine the value.

6.2.1.2.3 **<u>Carbon Monoxide</u>.** CO is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution, but also from stationary combustion sources. CO emissions from wood-burning stoves and fireplaces can also be important sources of this pollutant. Health effects resulting from exposure to high CO levels can include chest pain in heart patients, headaches, and reduced mental alertness.

Recorded CO monitoring data for the Anaheim-Pampas Lane, Costa Mesa-Mesa Verde Drive and La Habra monitoring stations are provided in Tables 6.2-5A through 6.2-5C. These

TABLE 6.2-5A
CONCENTRATION DATA SUMMARY FOR CARBON MONOXIDE AT ANAHEIM-PAMPAS LANE STATION

	Highest Concentration for CO (ppm)		Number of Days Exceeding Standards (days)			
Year	1-hour	8-hour	Federal 1-hour	Federal 8-hour	State 1-hour	State 8-hour
2006	4.5	2.9	0	0	0	NA
2005	4.1	3.27	0	0	0	0
2004	5.3	4.09	0	0	0	0

The federal CO standards are 1-hour average (35 ppm) and 8-hour average (9 ppm).
The state CO standards are 1-hour average (20 ppm) and 8-hour average (9 ppm).
Monitoring site address: 1630 W. Pampas Lane, Anaheim, CA.
Source: EPA AirData (http://www.epa.gov/air/data/index.html).
NA = There were insufficient (or no) data available to determine the value.

TABLE 6.2-5B
CONCENTRATION DATA SUMMARY FOR CARBON MONOXIDE AT COSTA MESA-MESA VERDE DRIVE STATION

	Highest Concentration for CO (ppm)		Number of Days Exceeding Standards (days)			
Year	1-hour	8-hour	Federal 1-hour	Federal 8-hour	State 1-hour	State 8-hour
2006	3.5	3.01	0	0	0	0
2005	4.7	3.16	0	0	0	0
2004	4.9	4.07	0	0	0	0

The federal CO standards are 1-hour average (35 ppm) and 8-hour average (9 ppm).
The state CO standards are 1-hour average (20 ppm) and 8-hour average (9 ppm).
Monitoring site address: 2850 Mesa Verde Drive, Costa Mesa, CA.
Source: EPA AirData (http://www.epa.gov/air/data/index.html).

TABLE 6.2-5C
CONCENTRATION DATA SUMMARY FOR CARBON MONOXIDE AT LA HABRA STATION

	Highest Concentration for CO (ppm)		Number of Days Exceeding Standards (days)			
Year	1-hour	8-hour	Federal 1-hour	Federal 8-hour	State 1-hour	State 8-hour
2006	6.0	2.87	0	0	0	0
2005	6.8	3.07	0	0	0	0
2004	7.4	4.09	0	0	0	0

The federal CO standards are 1-hour average (35 ppm) and 8-hour average (9 ppm).
The state CO standards are 1-hour average (20 ppm) and 8-hour average (9 ppm).
Monitoring site address: 621 W. Lambert, La Habra, CA.
Source: EPA AirData (http://www.epa.gov/air/data/index.html).

tables indicate that the South Coast Air Basin is in attainment for CO. The data in Tables 6.2-5A through 6.2-5C show that maximum 1-hour average CO levels comply with the NAAQS and CAAQS of 35 ppm and 20 ppm, respectively. Neither limit has been exceeded at any station in the last three years. The maximum 1-hour concentration was 7.4 ppm at the La Habra monitoring site in 2004. The tables also show that maximum recorded 8-hour average CO levels comply with the NAAQS and CAAQS of 9.0 ppm within the last three years. The maximum 8-hour concentration was 4.09 ppm at the Anaheim-Pampas Lane and La Habra stations in 2004. The South Coast Air Basin was redesignated as attainment for CO in 2007.

6.2.1.2.4 Nitrogen Dioxide. Nitrogen oxide emissions are primarily generated from the combustion of fuels. Nitrogen oxides include nitric oxide and NO_2. Because nitric oxide converts to NO_2 in the atmosphere over time and NO_2 has been demonstrated to cause the more adverse health effects, of the two, NO_2 is the listed criteria pollutant. The control of NO_2 also is important because of this pollutant's role in the atmospheric formation of ozone, the principal component of smog. It also can provoke lung irritation and damage.

Recorded NO_2 concentration data for the Anaheim-Pampas Lane, Costa Mesa-Mesa Verde Drive, and La Habra monitoring stations are provided in Tables 6.2-6A through 6.2-6C. As supported by the tables, the Basin has been in attainment of NO_2 for many years.

TABLE 6.2-6A
CONCENTRATION DATA SUMMARY FOR NITROGEN DIOXIDE AT ANAHEIM-PAMPAS LANE STATION

Year	Highest 1-hour Concentration for NO_2 (ppm)	Annual Average for NO_2 (ppm)	Number of Days Exceeding Standards (days)	
			Federal	State
2006	0.114	0.020	0	0
2005	0.089	0.021	0	0
2004	0.122	0.020	0	0

The federal NO_2 standard is annual average: 0.053 ppm.
The state NO_2 standard is 1-hour average: 0.25 ppm.
Monitoring site address: 1630 W. Pampas Lane, Anaheim, CA.
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

On February 23, 2007, CARB approved new, more stringent ambient California standards for NO_2. The new 1-hour standard will be 0.18 ppm not to be exceeded, and the new annual average standard is 0.030 ppm. The Office of Administrative Law must approve the standards before they take effect. The new CAAQS are expected to become effective in the near future.

TABLE 6.2-6B
CONCENTRATION DATA SUMMARY FOR NITROGEN DIOXIDE AT COSTA MESA-MESA VERDE DRIVE STATION

Year	Highest 1-hour Concentration for NO_2 (ppm)	Annual Average for NO_2 (ppm)	Number of Days Exceeding Standards (days)	
			Federal	State
2006	0.101	0.015	0	0
2005	0.085	0.014	0	0
2004	0.097	0.016	0	0

The federal NO_2 standard is annual average: 0.053 ppm.
The state NO_2 standard is 1-hour average: 0.25 ppm.
Monitoring site address: 2850 Mesa Verde Drive, Costa Mesa, CA.
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

TABLE 6.2-6C
CONCENTRATION DATA SUMMARY FOR NITROGEN DIOXIDE AT LA HABRA STATION

Year	Highest 1-hour Concentration for NO_2 (ppm)	Annual Average for NO_2 (ppm)	Number of Days Exceeding Standards (days)	
			Federal	State
2006	0.091	0.022	0	0
2005	0.090	0.025	0	0
2004	0.105	0.025	0	0

The federal NO_2 standard is annual average: 0.053 ppm.
The state NO_2 standard is 1-hour average: 0.25 ppm.
Monitoring site address: 621 W. Lambert, La Habra, CA.
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm).

Maximum annual average (arithmetic mean) NO_2 levels comply with the federal NAAQS of 0.053 ppm. This limit has not been exceeded in the last three years. The maximum annual average concentration was 0.025 ppm at the La Habra station in 2004 and 2005. The data in the tables also show that maximum 1-hour average NO_2 levels comply with the CAAQS of 0.25 ppm. This limit also has not been exceeded in the last three years. The maximum 1-hour concentration was 0.122 ppm at the Anaheim-Pampas Lane station in 2004.

6.2.1.2.5 Sulfur Dioxide. SO_2 is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains trace quantities of sulfur, while fuel oils contain much larger amounts. SO_2 can increase lung disease and breathing problems for asthmatics. It reacts in the atmosphere to form acid rain, which is destructive to crops and vegetation, as well as to buildings, materials, and works of art.

Summaries of monitored SO_2 concentration data at Costa Mesa-Mesa Verde Drive Station are presented in Table 6.2-7. The Anaheim-Pampas Lane and La Habra monitoring stations do not monitor for SO_2. The table shows that the site is in attainment for all applicable state and federal ambient standards for SO_2.

TABLE 6.2-7
CONCENTRATION DATA SUMMARY FOR SULFUR DIOXIDE AT COSTA MESA-MESA VERDE DRIVE STATION

	Highest Concentration for SO_2 (ppm)			Annual Average for SO_2 (ppm)	Number of Days Exceeding Standards (days)				
Year	1-hour	3-hour	24-hour		Federal 3-hour	Federal 24-hour	Federal Annual Mean	State 1-hour	State 24-hour
2006	0.012	0.009	0.005	0.001	0	0	0	0	0
2005	0.012	0.010	0.008	0.001	0	0	0	0	0
2004	0.031	0.020	0.008	0.002	0	0	0	0	0

The federal SO_2 standards are annual average (0.03 ppm,) 24-hour average (0.14 ppm), and 3-hour average (0.50 ppm).
The state SO_2 standards are 24-hour average (0.04 ppm) and 1-hour average (0.25 ppm).
Monitoring site address: 2850 Mesa Verde Drive, Costa Mesa, CA.
Source: EPA AirData (http://www.epa.gov/air/data/index.html).

The SO_2 data in Table 6.2-7 demonstrates that the 24-hour average CAAQS of 0.04 ppm is not exceeded in the proposed project vicinity and the federal 24-hour average SO_2 NAAQS of 0.14 ppm has not been exceeded over the same time period. The maximum 24-hour SO_2 monitored concentration of 0.008 ppm was measured at the Costa Mesa-Mesa Verde Drive monitoring station in 2004 and 2005. The recorded annual average (arithmetic mean) SO_2 concentrations at the monitoring station are also presented in the table, and in all cases are well below the federal ambient air quality standard of 0.03 ppm. The maximum 1-hour concentration was 0.031 which easily complied with the CAAQS of 0.25 ppm.

6.2.1.2.6 Lead. Lead exposure can occur through multiple pathways, including inhalation of air and ingestion of lead in food from water, soil, or dust contamination. Excessive exposure to lead can trigger seizures, mental retardation or behavioral disorders, and other central nervous system damage. Lead gasoline additives, nonferrous smelters, and battery plants were the most significant contributors to atmospheric lead emissions. Legislation in the early 1970s required gradual reduction of the lead content of gasoline over a period of time, which has dramatically reduced lead emissions from mobile and other combustion sources. In addition, unleaded gasoline was introduced in 1975, and together these controls have essentially eliminated violations of the lead standard for ambient air in urban areas. There are no monitoring stations in Orange County that measure lead concentrations. Measured lead concentration levels for Los Angeles County Pico Rivera Station are presented in Table 6.2-8. The data in this table support the attainment status of the South Coast Air Basin for lead.

TABLE 6.2-8
CONCENTRATION DATA SUMMARY FOR LEAD
AT PICO RIVERA STATION

Year	Highest 24-hour Concentration for Lead (μg/m³)	Number of Days Exceeding Federal and State Standards (days)
2006	0.09	0
2005	0.04	0
2004	0.05	0

The federal lead standard is quarterly average: 1.5 μg/m³.
The state lead standard is 30 days average: 1.5 μg/m³.
Monitoring site address: 4144 San Gabriel River Parkway, Pico Rivera, CA.
Source: EPA AirData (http://www.epa.gov/air/data/index.html).

6.2.1.2.7 Particulate Sulfates. Particulate sulfates are the product of further oxidation of SO_2. Sulfate compounds consist of primary and secondary particles. Primary sulfate particles are directly emitted from open pit mines, dry lakebeds, and desert soils. Fuel combustion is another source of sulfates, both primary and secondary. Secondary sulfate particles are produced when SO_X emissions are transformed into particles through physical and chemical processes in the atmosphere. Particles can be transported long distances. The South Coast Air Basin is in attainment with the state standard for sulfates, and there is no federal standard.

6.2.1.2.8 Other State-designated Criteria Pollutants. Along with sulfates, California has designated hydrogen sulfide and visibility-reducing particles as criteria pollutants, in addition to the federal criteria pollutants. The entire state is in attainment for visibility-reducing particles, and the South Coast Air Basin has an unclassified attainment status for hydrogen sulfide.

6.2.2 Environmental Consequences

This section describes the analyses conducted to assess the potential air quality impacts from the proposed project. Impacts due to the CPP would be considered significant if, when combined with background ambient concentrations, they would exceed an ambient air quality standard (AAQS), or if by themselves they would exceed an applicable SCAQMD significant impact level (for nonattainment pollutants). Emissions estimates for both construction and operation of the proposed project are presented in this section. The selection and setup of dispersion models for evaluation of potential project impacts to air quality are also described (e.g., emissions scenarios and release parameters, building wake effects, meteorological data, and receptor locations), and the results of project-specific modeling analyses are presented.

6.2.2.1 Project Construction Emissions

The primary emission sources during construction of the proposed project would include exhaust from heavy construction equipment and vehicles, and fugitive dust generated in areas disturbed by demolition of structures, grading and excavation of the proposed site and linear areas, and erecting facility structures. The expected duration of the project construction schedule, which includes commissioning, is 12 months, during which the proposed project site (including laydown areas) and linear areas would be disturbed differently each construction month. Information on the estimated land disturbance aspects of major construction activities is summarized above, and in Section 3, Facility Description and Location.

Construction equipment and vehicle exhaust emissions were estimated using equipment lists and construction scheduling information provided by the project design engineering firm (see Tables 6.2-9A and 6.2-9B, and Appendix B-2). From these data, the numbers of pieces of different types of equipment to be used in each month were estimated for construction modeling purposes. Equipment-specific emissions factors were used to estimate mass emissions for all criteria pollutants from diesel-fueled construction equipment and vehicles using the off-road emission factors prepared by SCAQMD from CARB's OFF-ROAD Model. Assumptions used in calculating project construction emissions included a 12-month construction period, 5 construction days per week, and a single-shift, 14-hour workday. The list of fueled equipment needed during each month of the construction effort (see Tables 6.2-9a and 6.2-9b) served as the basis for estimating pollutant emissions throughout the term of construction, and helped to identify the periods of probable maximum short-term emissions. Use of diesel fuel with an ultra-low fuel sulfur content of 0.0015 percent by weight (15 ppm) was assumed for all diesel construction equipment.

Fugitive dust emissions resulting from onsite soil disturbances were estimated using emission factors from the SCAQMD California Environmental Quality Act (CEQA) Air Quality Handbook (SCAQMD, 1993) for bulldozing and dirt-pushing, travel on unpaved roads, and handling/storage of aggregate materials. A dust control efficiency of 85 percent for activities within the proposed project site and temporary construction area was assumed to be achieved for these activities by frequent watering or other measures when required.

Emissions from on-road delivery trucks were given by the client, worker commute trips were estimated based on the number of construction workers onsite, and emission factors derived by SCAQMD for on-road vehicles from the EMFAC2007 model (Appendix B-2). Construction workers were assumed to commute to the proposed project site from locations within Orange County.

The short-term maximum construction emissions were calculated using Month 1 plant area construction equipment in combination with Month 5 linear area construction equipment for

TABLE 6.2-9A
ESTIMATED PIECES OF CONSTRUCTION EQUIPMENT AND SCHEDULES FOR ONSITE CONSTRUCTION OF THE PROPOSED POWER STATION

	Construction Equipment	Average Hours per Day	Average Units Onsite per Month												Total Months 1-12
			1	2	3	4	5	6	7	8	9	10	11	12	
1	Grader	8	1	1	1										3
2	Dozer	8	1	1											2
3	Scraper	8	1												1
4	Vibrator	8	1	1											2
5	Loader	8	2												2
6	Forklift	8			1	2	3	3	3	3	3	3	2		23
7	Backhoe	8	2	3	3	2	2	1	1	1	1	1			17
8	Crane	8		1	1	2	3	4	4	3	2	1			21
10	Field truck (3/4T)	6	1	1	1	1	1	2	2	2	2	1	1	1	16
11	Dump truck	8	2	2	2	1	1								8
12	Water truck	12	1	1	1	1	1	1	1	1	1	1			10
15	Boom truck	8				1	1	1	1	1	1	1			7
16	Concrete pump truck	8	1	2	3	3	2	1	1						13
17	Port air compressor	8	1	1	1	1	1	1	1	1	1	1			10
18	Light plant	3	1	1	1	1	1	1	1	1	1	1			10

TABLE 6.2-9B
ESTIMATED PIECES OF CONSTRUCTION EQUIPMENT AND SCHEDULES FOR THE CONSTRUCTION OF LINEARS

	Construction Equipment	Average Hours per Day	Average Units Onsite per Month												Total Months 1-12
			1	2	3	4	5	6	7	8	9	10	11	12	
1	Loader	8		2	2	2	3	2	2	2					15
2	Backhoe	8		2	2	2	3	2	2	2					15
3	Field truck (3/4T)	6		1	1	1	1	1	1	1					7

the most conservative approach. The first month of site construction was used for short-term maximum emissions because the first month includes demolition of existing buildings and asphalt at the site, in addition to grading and drainage activities. Also, the first month entails the use of larger equipment, with correspondingly higher emissions than any other

construction month. The estimated maximum amount of equipment for linear construction occurs during the fifth month, owing to the construction of the gas pipeline and 69 kV linears. The proposed natural gas pipeline will involve the use of jack and bore construction techniques under Carbon Creek, with the construction of one pit on each side of the creek to facilitate the operation of the jack and bore equipment. Therefore, the fifth month was chosen for short-term maximum emissions for linear construction. Annual emissions were based on the 12 consecutive month construction period, months 1-12. For dispersion modeling purposes, fugitive dust emissions during construction are represented as area sources distributed across the affected site. Exhaust emissions of all pollutants due to equipment fuel combustion were characterized as groupings of point sources. Point sources were selected for representation of the equipment exhaust emissions so that the ozone limiting method (OLM) version of the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) dispersion model could be used to calculate 1-hour NO_2 impacts during the construction period. Application of the OLM option in AERMOD to predict NO_2 concentrations requires hourly ozone input data. Hourly ozone data recorded at the SCAQMD Anaheim-Pampas Lane Station monitoring station for the same 5 years as the input meteorological data were used in this analysis.

The equipment point-source stack parameters were obtained from the Risk Management Guidance for the Permitting of New Stationary Source Diesel-Fueled Engine, (CARB, 2000) for the average sized diesel engine (100 horsepower) used during construction.

Detailed spreadsheets are provided in Appendix B-2, which show the calculation of emissions from all project construction activities and equipment, and the data and assumptions used in these calculations. Tables 6.2-10 and 6.2-11, respectively, present the estimated maximum daily emissions of air pollutants due to project construction activities within the project site and for construction of the offsite linears. Tables 6.2-12 and 6.2-13, respectively, show the estimated maximum annual emissions due to construction activities onsite and related to the linears.

6.2.2.2 Operational Emissions

The proposed CTGs will use pipeline-quality natural gas fuel exclusively. Table 3.4-3 in Section 3.0 presents the expected composition of the natural gas to be supplied to the proposed project by SCGC. Estimated emissions of sulfur oxides for combustion of this fuel by proposed project equipment assumed full oxidation of all fuel sulfur to SO_2 and an average natural gas sulfur content of 0.25 grains per 100 dry standard cubic feet (dscf). The emission rate used in modeling annual average concentrations of this pollutant used this sulfur content. Modeling for short-term SO_2 concentrations (1-hour, 3-hour, and 24-hour averages) assumed the maximum sulfur content SCGC may legally provide to the project (i.e., 1 grain per 100 dry standard cubic feet). This higher sulfur content was assumed to ensure evaluation of worst-case impacts, although the likelihood that actual gas shipments

TABLE 6.2-10
DAILY MAXIMUM EMISSIONS OF CRITERIA POLLUTANTS (LBS/DAY) DUE TO ONSITE CONSTRUCTION

Activity	PM_{10}	$PM_{2.5}$	CO	VOC	NO_X	SO_X
Onsite Combustion Emissions						
Diesel construction equipment	4.69	4.32	35.55	10.44	62.09	0.06
Dump trucks, pickup trucks, service trucks and worker vehicles	0.02	0.02	0.13	0.03	0.41	0.00
Construction combustion subtotal (lbs)	4.7	4.3	35.7	10.5	62.5	0.1
Onsite Fugitive Dust Emissions						
Vehicle travel on paved and unpaved site	2.35	0.50				
Earth clearing/bulldozing	1.66	0.34				
Earth loading/storage	0.31	0.06				
Demolition	23.12	4.81				
Fugitive dust subtotal (lbs)	27.4	5.7				
Offsite On-highway Emissions						
Worker passenger vehicle, service trucks, and delivery trucks – combustion emissions	0.81	0.65	30.88	3.75	17.00	0.04
Worker passenger vehicle, service trucks, and delivery trucks – paved road dust	91.03	15.38				
Subtotal of offsite emissions (lbs)	91.84	16.04	30.88	3.75	17.00	0.04
Total Max. Daily Emissions (lbs)	124.0	26.0	66.6	14.3	79.5	0.1

Notes:
PM_{10} = particulate matter less than 10 microns in diameter.
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.
VOC = volatile organic compounds.
CO = carbon monoxide.
NO_X = nitrogen oxide(s).
SO_X = sulfur oxide(s).

will ever contain such high sulfur levels is considered very remote. The black start engine will use ultra-low sulfur diesel fuel. Estimated emissions of sulfur oxides for combustion of this latter fuel assumed full oxidation of all fuel sulfur to SO_2 and a diesel sulfur content of 15 ppm by weight.

6.2.2.2.1 <u>Normal Turbine Operating Emissions</u>. The most important emission sources of the proposed project will be the new CTGs. Maximum short-term operational emissions from the CTGs were determined from a comparative evaluation of potential emissions corresponding to normal operating conditions, and CTG startup/shutdown conditions. The long-term operational emissions from the CTGs were estimated by summing the anticipated

TABLE 6.2-11
DAILY MAXIMUM EMISSIONS OF CRITERIA POLLUTANTS (LBS/DAY) DUE TO CONSTRUCTION OF LINEARS

Activity	PM_{10}	$PM_{2.5}$	CO	VOC	NO_X	SO_X
Linears Combustion Emissions						
Diesel construction equipment	2.66	2.45	17.57	4.77	29.14	0.03
Field delivery trucks	0.00	0.00	0.02	0.00	0.00	0.00
Construction combustion subtotal (lbs)	2.7	2.4	17.6	4.8	29.1	0.03
Linears Fugitive Dust Emissions						
Vehicle travel on paved roads	0.32	0.07				
Earth loading	0.00	0.00				
Fugitive dust subtotal (lbs)	0.3	0.1				
Total Max. Daily Emissions Linears (lbs)	3.0	2.5	17.6	4.8	29.1	0.03

Notes:
PM_{10} = particulate matter less than 10 microns in diameter.
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.
VOC = volatile organic compounds.
CO = carbon monoxide.
NO_X = nitrogen oxide(s).
SO_X = sulfur oxide(s).

annual emissions contributions from normal operating conditions and CTG startup/shutdown conditions. Estimated annual emissions of air pollutants for the CTGs have been calculated based on the expected operating schedule for the CTGs presented below in Table 6.2-14. The hourly criteria pollutant emission rates and stack parameters provided by the CTG vendors for three load conditions (50 percent, 75 percent, and 100 percent) at three ambient temperatures (38°F, 59°F, and 109°F) are presented in Table 6.2-15. The cases listed in this table also include emissions data for CTG operations with and without cooling of the inlet air to the turbines for the warmer ambient temperature conditions. The combined scenarios presented in this table bound the expected normal operating range of each proposed CTG.

6.2.2.2.2 <u>Turbine Startup and Shutdown Emissions</u>. The expected emissions and durations associated with CTG startup and shutdown events are summarized in Table 6.2-16.

Because hours that include startup and shutdown events would have higher NO_X, CO, and VOC emissions than the normal operating condition with fully functioning SCR and CO oxidation catalyst, they were incorporated (as applicable) into the worst-case short- and long-term emissions estimates in the air quality dispersion modeling simulations for these pollutants.

6.2.2.2.3 <u>Additional Emission Sources</u>. The proposed project will include a black start generator engine powered by diesel fuel. The 750 kilowatt (kW) black start engine will be

TABLE 6.2-12
MAXIMUM ANNUAL EMISSIONS OF CRITERIA POLLUTANTS (TON/YEAR) DUE TO ONSITE CONSTRUCTION

Activity	PM_{10}	$PM_{2.5}$	CO	VOC	NO_X	SO_X
Onsite Combustion Emissions						
Diesel construction equipment	0.39	0.35	3.10	0.89	6.29	0.01
Dump trucks, pickup trucks, service trucks and worker vehicles	0.002	0.002	0.03	0.01	0.05	0.0001
Construction combustion subtotal (tons)	0.4	0.4	3.1	0.9	6.3	0.01
Onsite Fugitive Dust Emissions						
Worker passenger vehicle, service trucks, and delivery trucks	0.30	0.06				
Earth clearing/bulldozing	0.15	0.03				
Earth loading/storage	0.02	0.00				
Demolition	0.25	0.05				
Fugitive dust subtotal (tons)	0.7	0.1				
Offsite On-Highway Emissions						
Worker passenger vehicle, service trucks, and delivery trucks – combustion emissions	0.04	0.03	2.99	0.32	0.68	0.004
Worker passenger vehicle, service trucks, and delivery trucks – paved road dust	10.62	1.79				
Subtotal of offsite emissions (tons)	10.66	1.83	2.99	0.32	0.68	0.004
Total Max. Daily Emissions Onsite (tons)	11.8	2.3	6.1	1.2	7.0	0.01

Notes:
PM_{10} = particulate matter less than 10 microns in diameter.
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.
VOC = volatile organic compounds.
CO = carbon monoxide.
NO_X = nitrogen oxide(s).
SO_X = sulfur oxide(s).

tested one hour per month to ensure its operability during an emergency outage of grid power. Annual emissions and stack parameters for the testing of the engine are provided in Table 6.2-17. Emission rates shown in this table are based on EPA Tier 2 diesel engine emission factors. The engine fuel will be ultra-low sulfur diesel containing a maximum of 15 ppm sulfur (weight basis). The proposed project will also include a single small mechanical chiller cooling tower with a total of four cells. Detailed emissions calculations for all equipment of the operational proposed project are presented in Appendix B-3.

Emissions calculations for all CPP operating scenarios are provided in Appendix B-3.

TABLE 6.2-13
MAXIMUM ANNUAL EMISSIONS OF CRITERIA POLLUTANTS (TON/YEAR) DUE TO CONSTRUCTION OF LINEARS

Activity	PM_{10}	$PM_{2.5}$	CO	VOC	NO_X	SO_X
Linears Combustion Emissions						
Diesel construction equipment	0.15	0.13	0.97	0.26	1.60	0.002
Delivery trucks and field trucks	0.00	0.00	0.00	0.00	0.00	0.00
Construction combustion subtotal (tons)	0.1	0.1	1.0	0.3	1.6	0.002
Linears Fugitive Dust Emissions						
Field trucks, delivery trucks	0.02	0.01				
Earth loading	0.00	0.00				
Fugitive dust subtotal (tons)	0.02	0.01				
Total Max. Daily Emissions Linears (tons)	0.2	0.1	1.0	0.3	1.6	0.002

Notes:
PM_{10} = particulate matter less than 10 microns in diameter.
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.
VOC = volatile organic compounds.
CO = carbon monoxide.
NO_X = nitrogen oxide(s).
SO_X = sulfur oxide(s).

TABLE 6.2-14
MAXIMUM PROPOSED CTG OPERATING SCHEDULES

Operating Conditions (CTGs 1 through 4)	Annual Numbers
Number of Startups/Shutdown Cycles per CTG	128.5
Startup/Shutdown Time (hours per CTG)	60
Normal Operating Hours (Combined hours for Four CTGs)	4,006

Each CTG unit will be equipped with a new stack with the following dimensions:
Height – 86 ft.
Diameter – 11.7 ft.

6.2.2.2.4 Emissions Scenarios for Modeling. Reasonable worst-case project emissions scenarios were developed for each combination of pollutant and averaging time corresponding to an air quality standard or significance limit. Table 6.2-18 presents the worst-case modeling scenarios selected for each averaging time. These scenarios form the basis for the air dispersion modeling analyses presented in Section 6.2.2.4. Some notes regarding the selection of these scenarios and the resulting emission calculations are provided below.

Estimated annual emission totals for all pollutants incorporate the maximum requested numbers of startups and shutdowns, as well as the proposed maximum steady-state operating

TABLE 6.2-15
1-HOUR OPERATING EMISSION RATES AND STACK PARAMETERS FOR CTG OPERATING LOAD SCENARIOS

Case No.	1	2	3	4	5	6	7	8	9
Ambient Temperature (°F)	109	109	109	59	59	59	38	38	38
Stack Diameter (ft)	11.67	11.67	11.67	11.67	11.67	11.67	11.67	11.67	11.67
Exhaust Flow (lb/hr)	1,066,554	907,936	764,619	1,080,197	963,857	832,416	1,085,651	992,555	867,866
CTG Load Level (percent)	100	75	50	100	75	50	100	75	50
Cooler	ON	ON	NONE	ON	NONE	NONE	NONE	NONE	NONE
Exhaust Temperature (°F)	841.6	858.9	832.6	838.6	785.5	754.2	836.7	759.9	710.4
Exit Velocity, ft/minute	5,461.0	4,710.7	3,888.0	5,518.1	4,722.4	3,975.9	5,537.9	4,763.1	3,995.7
NO_X Emissions per Turbine Unit									
ppmvd @ 15 percent O_2	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32
lb/hr	3.99	3.19	2.40	4.05	3.20	2.38	4.03	3.18	2.39
CO Emissions per Turbine Unit									
ppmvd @ 15 percent O_2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
lb/hr	6.28	5.01	3.78	6.36	5.01	3.75	6.34	5.00	3.76
VOC Emissions per Turbine Unit									
ppmvd @ 15 percent O_2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
lb/hr as methane (CH_4)	1.19	0.95	0.71	1.20	0.95	0.70	1.20	0.96	0.71
PM_{10} Emissions per Turbine Unit									
lb/hr	2.99	2.39	1.80	3.04	2.40	1.79	3.03	2.39	1.80
SO_X Emissions per Turbine Unit									
(short-term rate) lb/hr	1.34	1.07	0.81	1.36	1.07	0.80	1.35	1.07	0.80
(long-term rate) lb/hr	0.33	0.27	0.20	0.34	0.27	0.20	0.34	0.27	0.20

TABLE 6.2-15 (CONTINUED)
1-HOUR OPERATING EMISSION RATES AND STACK PARAMETERS FOR CTG OPERATING LOAD SCENARIOS

Notes:

A worst-case short-term natural gas fuel sulfur content of 1.0 grains per 100 dry standard cubic feet was used to estimate the CTG emissions of SO_2 in this table. The actual expected average fuel gas sulfur content is 0.25 grains per 100 dry standard cubic feet.

CO = carbon monoxide.
CTG = combustion turbine generator.
lb/hr = pounds per hour.
NO_X = nitrogen oxide.
ppmvd = parts per million by volume, dry.
O_2 = oxygen.
PM_{10} = particulate matter 10 microns in diameter.
ppmvd = parts per million by volume, dry.
SO_X = sulfur oxides.
VOC = volatile organic compounds.

TABLE 6.2-16
CRITERIA POLLUTANT EMISSION RATES DURING CTG STARTUP AND SHUTDOWN (PER TURBINE)

	Startup (20 minutes duration)		Shutdown (8 minutes duration)	
Pollutant	Maximum Instantaneous Emission Rate (lb/hr)	Total Emissions (lb/event)	Maximum Instantaneous Emissions Rate (lb/hr)	Total Emissions (lb/event)
NO_X	20.87	6.96	21.36	2.85
CO	13.27	4.42	18.38	2.45
VOC	0.75	0.25	0.39	0.05
SO_2	1.08	0.36	0.80	0.11
PM_{10}	2.01	0.67	1.14	0.15

Note:
CO = carbon monoxide.
NO_X = nitrogen oxide.
PM_{10} = particulate matter 10 microns in diameter.
SO_2 = sulfur dioxide.
VOC = volatile organic compounds.

TABLE 6.2-17
BLACK START GENERATOR ENGINE EMISSION PARAMETERS

	Black Start Engine Emissions	
Pollutant	lb/hr	lb/yr
NO_X	10.58	126.99
CO	5.79	69.45
VOC	1.65	19.84
SO_X	0.01	0.07
PM_{10}	0.33	3.97

Source
Annual emissions based on 12 hours of operation.
Stack height: 20 feet.
Stack diameter: 0.83 feet.
Stack exhaust flow rate at full firing: 5,647 actual cubic feet per minute (ACFM).
Stack exhaust temperature at full firing: 949.8ºF.

hours (see Table 6.2-14). For the purpose of developing annual emission estimates, the contributions associated with all normal CTG operating hours were calculated based on the maximum emission rates per pollutant which occurred in the 100 percent load and 59ºF ambient temperature case.

TABLE 6.2-18
CRITERIA POLLUTANT SOURCES AND EMISSION TOTALS FOR THE WORST-CASE PROJECT EMISSIONS SCENARIOS FOR ALL AVERAGING TIMES

		Emissions in Pounds – Entire Period			
Averaging Time	Operating Equipment	Pollutant	Four CTGs	Black Start Engine	4-cell Chiller Cooling Tower
1-hour	NO_X and CO: One startup (all CTGs) with remainder of period at normal operations (100% load, 59ºF).	NO_X	38.63	10.58	-
	SO_2: 100% load operation (4 CTGs) at 59ºF ambient temperature.	CO	34.65	5.79	-
	All: includes test of black start engine.	SO_2	5.43	0.006	-
3-hour	SO_2: Continuous 100% load operation (all CTGs) at 59ºF ambient temperature, plus one-hour test of black start engine.	SO_2	16.28	0.006	-
8-hour	CO: One startup, one shutdown (all CTGs) with remainder of period at normal operations (100% load, 59ºF), plus one-hour test of black start engine.	CO	219.16	5.79	-
24-hour	PM_{10}: Continuous full-load (all CTGs) at 59ºF ambient temperature plus the emissions from 4-cell chillers cooling tower.	PM_{10}	291.48	0.33	0.21
	SO_2: Continuous full-load (all CTGs) at 59ºF ambient temperature. All: includes test of black start engine for one hour.	SO_2	130.26	0.006	-
Annual	All: each CTGs operates at full load for 1,002 hours at 49°F (cooler on), 128.5 startups and shutdowns), plus test of black start engine one hour per month (12 hours per year).	NO_X	21,259	126.99	-
	PM_{10}: include the emissions from 4-cell chiller cooling tower for all hours of CTG operation.	PM_{10}	12,585	3.97	35.78
		SO_2	5,676	0.07	-

Short-term emissions were calculated for the pollutant and averaging times corresponding to the AAQS. The worst-case condition was assumed for purposes of estimating maximum 1-hour emission rates for all pollutants. A startup of all CTGs with normal operations for the remainder of the hour would produce the worst-case hourly NO_X and CO emissions. However, SO_2 emissions would be directly proportional to fuel usage. Since the highest maximum fuel usage rate would occur when all four CTGs are running at 100 percent with an ambient temperature of 59°F, this condition was selected to represent maximum hourly SO_2 emissions. The 3-hour SO_2 emission rate was calculated based on a scenario with all CTGs running at 100 percent for the ambient temperature of 59°F. The 8-hour maximum CO emission rate was calculated assuming all CTGs had one startup, one shutdown, and the balance of the period operating at the worst-case operating condition (running 100 percent load at 59°F ambient temperature).

In each of these short-term scenarios, it was assumed that the black start engine was tested for one of the hours during the averaging period. Estimated annual emissions from the black start engine are based on 12 hours of operation per year at the maximum fuel input rate. For modeling purposes, the maximum chiller cooling tower emissions from all 4 cells were assumed to occur for all possible hours of CTG operation throughout the year (4,006 hours), although the cooling tower is anticipated to operate substantially fewer hours and with 1 to 4 cells operating depending upon number of turbines operating.

The PM_{10} and SO_2 worst-case 24-hour emission rate was calculated assuming all CTGs are running at 100 percent for 24 hours at the emission rate corresponding to an ambient temperature of 59°F.

Note that CTG commissioning impacts are evaluated separately in the air quality impact modeling analysis, due to the temporary, one-time nature of this activity.

6.2.2.2.5 <u>Combined Annual Project Emissions</u>. The total combined annual emissions of criteria pollutants from all emission sources of the proposed project are shown in Table 6.2-19, including four CTG units, the black start engine, and the 4-cell chiller cooling tower. Annual emissions of all pollutants were calculated assuming the CTG hours per year of operation described previously in Table 6.2-14 and the corresponding hours of 4-cell chiller cooling tower operation. Testing of the black start engine was assumed for 12 hours per year.

6.2.2.2.6 <u>Combustion Turbine Commissioning Emissions</u>. Commissioning of each new CTG will be performed in a defined series of tests that will be conducted following its installation at the proposed project facility. The specific tests to be run on each CTG include:

- First fire the unit and then shutdown to check for leaks, etc.
- Synch and check emergency stop (e-stop)

TABLE 6.2-19
ESTIMATED TOTAL PROJECT ANNUAL EMISSIONS OF CRITERIA POLLUTANTS

Pollutant	Emissions (tons/year)[1,2]
SO_2	2.84
NO_X	10.69
VOC	2.49
PM_{10} /$PM_{2.5}$[3]	6.37
CO	14.54
Lead[4]	<0.6

Notes:
1 Includes emissions from four new CTG units
2 CTG emissions based on 1,001.5 hours normal operation, plus 128.5 starts and shutdowns for each turbine
3 PM_{10}/$PM_{2.5}$ emissions includes both filterable (front-half) and condensable (back-half) particulates
4 Lead emissions are 'non-detect' from AP-42 for CTGs firing natural gas
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
VOC = volatile organic compounds
SO_2 = sulfur dioxide

- Additional automatic voltage regulator (AVR) commissioning
- Break-in run
- Dynamic commissioning of AVR and commission water injection and SPRINT
- Base load AVR commissioning

The duration of all tests may be affected by unforeseen events and therefore can only be estimated in advance. Commissioning of each CTG with partially abated emissions is expected to require a maximum of 104 hours of operation during a period not to exceed 1 month. At least one CTG start would be needed for each test, and additional starts may be necessary. The annual frequency of CTG starts during the year when commissioning occurs is not expected to exceed the frequency of CTG starts during operation (refer to Table 6.2-14). Fuel flow monitoring would be conducted for all tests.

The CPP proposes a commissioning period of approximately 4 months during which all installed equipment would be run and tested. The CTG commissioning periods would begin when the CTGs first burn natural gas. The CPP will make every effort to minimize emissions of CO, VOC, and NO_X during the commissioning period. However, not all of the equipment

to abate these emissions would be fully operational at the start of the commissioning period. The CPP requests a maximum of 104 hours of partially abated emissions for each CTG.

When it has been installed, the oxidation catalyst in each train will abate CO and VOC emissions from the CTG, because it is essentially a passive device. While in some cases it may be possible to install the oxidation catalyst prior to initial startup of CTGs, it may not be installed until late in the commissioning period. The SCR catalyst may not be installed at the same time as the oxidation catalyst. NO_X emissions from the CTG may be only partially abated during times that the CTG burners are being tuned and the SCR system is being tested. Regardless of the fact that the oxidation catalyst and SCR may not be installed until late in the commissioning process, the inherent low emissions of NO_X, CO, and VOC associated with water injection will ensure that the impacts of these emissions are kept to low levels. Dispersion modeling to evaluate the impacts of commissioning tests on local air quality is presented in Section 6.2.2.3.

Conservative, worst-case CTG commissioning emissions were estimated by assuming that the control efficiency of the applicable abatement systems will be essentially zero during the commissioning tests. Emissions of SO_2 are estimated by assuming full sulfur conversion in the natural gas to SO_2, and vary based on the amount of natural gas burned. Since the commissioning activities occur at low loads, SO_2 emissions will be higher from full load normal operations and thus were not examined in the commissioning phase.

The durations, corresponding pollutant emission rates and stack exhaust parameters applicable to individual commissioning tests for a single CTG are shown in Table 6.2-20. Detailed information regarding the assumed sequence of individual CTG commissioning tests and the associated pollutant emissions is provided in Appendix B-3.

6.2.2.2.7 Greenhouse Gas Emissions. In 2006, the California Assembly passed a law (AB32) directing CARB to develop regulations to reduce statewide greenhouse gas emissions to 1990 levels by 2020. Maximum potential greenhouse gas emissions from the proposed project were calculated using the California Climate Action Registry power/utility protocol. The estimated maximum potential greenhouse gas emissions from the proposed project, which includes four CTGs and one black start engine, are presented in Table 6.2-21. Additional calculation details for the greenhouse gas emissions estimates in this table are provided in Appendix B-4.

6.2.2.3 Air Quality Impacts Analysis

The purpose of the air quality impact analyses is to evaluate whether criteria pollutant emissions resulting from the proposed project would cause or contribute significantly to a violation of a CAAQS or NAAQS. Mathematical models designed to simulate the atmospheric transport and dispersion of airborne pollutants emitted from specific sources are

TABLE 6.2-20
DURATIONS AND CRITERIA POLLUTANT EMISSIONS FOR COMMISSIONING OF A SINGLE CTG

Activity	Duration (hours)	% Output at ISO	Exhaust Temp (ºF)	Exhaust Flow Rate (acfm)	Total Pollutant Estimated Emission per Event (lbs)			
					NO_X	CO	VOC	PM_{10}
1. First fire the unit and then shutdown to check for leaks, etc.	16	CI	694	199,271	133	548	18	64
2. Synch and check e-stop	12	SI	694	199,271	100	411	13	48
3. Additional automatic voltage regulator (AVR) commissioning	12	5%	726	218,499	174	219	5	48
4. Break-in run	8	5%	726	218,499	116	146	3	32
5. Dynamic commissioning of AVR and commission water injection and SPRINT	40	10 – 100%	713 – 843	239,475 – 513,911	82.8 – 170.5	46.2 – 68.1	0.3 – 1.0	16
6. Base load AVR commissioning	16	100%	843	513,911	682.1	272.5	20	64

Notes:
After SCR catalyst installation, the NO_X emissions would be reduced by 82%; this applies to activities 2-6, thus NO_X emissions presented in this table will be reduced by 82%.
After CO catalyst installation, the CO emissions would be reduced by 85%; this applies to activities 2-6, thus CO emissions presented in this table will be reduced by 85%.
CTG = combustion turbine generator.
AVR = automatic voltage regulator.
SCR = selective catalytic reduction.
At ISO = ambient temperature of 59ºF, relative humidity of 60%, and sea level.
CI = core idle mode of turbine operation, no load placed on unit.
SI = synch idle mod of turbine operation, no load placed on unit.

TABLE 6.2-21
MAXIMUM POTENTIAL GREENHOUSE GAS EMISSIONS FROM THE PROPOSED PROJECT

Emission Rate (metric tons/year)		
4 CTGs	1 black start engine	Total CO_2 Equivalent
109,232	1.87	109,234

used to quantify the maximum potential impacts of project emissions for comparison with applicable regulatory criteria. Potential impacts of toxic air contaminant emissions from the proposed project are evaluated in Section 6.16, Public Health.

Separate criteria pollutant modeling analyses were conducted to address the air quality effects of emissions from proposed project construction activities and facility operations because these activities would occur at different times. A further distinction is made between operation of the CTGs during a brief commissioning period and the subsequent normal operations of the proposed facility. Impacts from construction activities include fugitive dust from grading and excavation of disturbed areas and exhaust combustion products from diesel- and gasoline-fueled construction equipment and vehicles. The impacts from operations would be associated primarily with natural gas combustion in the CTGs, but would also include the effects of emissions from the diesel black start engine and the chiller cooling tower.

The air quality modeling methodology described in this section has been documented in a formal modeling protocol, which was submitted for comments to CEC and SCAQMD. A copy of this protocol is provided in Appendix B-5. The modeling approaches used to assess various aspects of the proposed project's potential impacts to air quality are discussed below.

6.2.2.3.1 Model and Model Option Selections. The impacts of project construction and operational emissions on criteria pollutant concentrations in the area adjacent to the proposed project site were evaluated using the AERMOD dispersion model (Version 07026). AERMOD is an appropriate analysis tool for this application because it has the ability to assess dispersion of emission plumes from multiple point, area, or volume sources in flat, simple, and complex terrain, and to use sequential hourly meteorological input data from a representative meteorological monitoring station. The regulatory default options were used, including building and stack tip downwash, default wind speed profiles, exclusion of deposition and gravitational settling, consideration of buoyant plume rise, and complex terrain.

For the AERMOD simulations to evaluate project construction and operational impacts on local NO_2 concentrations, the OLM option of the model was used to take into account the role of ambient ozone in limiting the conversion of emitted NO_X (which occurs mostly in the

form of NO) to NO_2, the pollutant regulated by ambient standards. The input data to the AERMOD-OLM model includes representative hourly ozone monitoring data for the same years corresponding to the meteorological input record. These simulations used the ozone data from the SCAQMD Anaheim-Pampas Lane monitoring site for the years 2002 through 2006.

To evaluate whether urban or rural dispersion parameters should be used in the model simulations, an analysis of land uses adjacent to the proposed project site was conducted in accordance with Section 7.2.8 of the Guideline on Air Quality Models (USEPA-450/2-78-027R and Auer [1978]), USEPA AERMOD implementation guide (2004), and its addendum (2006). Based on the Auer land use classification procedure, more than 50 percent of the area within a 1.86-mile (3-kilometer) radius of the proposed project site is appropriately classified as urban. Thus, according to the USEPA AERMOD implementation guide, the AERMOD urban option was selected. Accordingly, the land use parameter values shown in Table 6.2-22 were used when processing the John Wayne Airport surface and Miramar Naval Air Station upper air meteorological data by means of the American Meteorological Society/Environmental Protection Agency Regulatory Meteorological Preprocessor for AERMOD (AERMET) pre-processing program.

TABLE 6.2-22
AERMET LAND USE CHARACTERISTICS

Land Use Characteristic	Spring	Summer	Autumn	Winter
Albedo	0.14	0.16	0.18	0.14
Bowen Ratio	2.0	4.0	4.0	2.0
Surface Roughness (m)	1.0	1.0	1.0	1.0

6.2.2.3.2 <u>Building Wake Effects</u>. The effects of building wakes (i.e., downwash) on the plumes from the proposed project's CTGs, black start engine and chiller cooling tower were evaluated in the modeling for operational emissions, in accordance with USEPA guidance (USEPA, 1985). Location coordinates and dimensions of the buildings within the proposed project site that could potentially cause plume downwash effects for the new stacks were determined for different wind directions using the USEPA Building Profile Input Program – Prime (BPIP-Prime) (Version 04274). The following structures were identified within the proposed project site to be included in the downwash analysis:

- CTG-SCR1 – CTG-SCR4
- GSU and fire wall 1-4
- Cooling tower building
- Raw water tank

- DI water tank
- Seven buildings
- Water treatment building (sun shade roof)
- Main electrical equipment enclosure (EEE)
- Plant operations building and warehouse
- Black start diesel generator building

The results of the BPIP-Prime analysis were included in the AERMOD input files to enable simulation of downwash effects on the plumes of project emission sources. Input and output electronic files for the BPIP-Prime analysis are included with those from all dispersion modeling analyses on the digital versatile discs (DVDs) that are being submitted to accompany this AFC.

6.2.2.3.3 Meteorological Data. Meteorological data suitable for direct input to AERMOD were purchased from the National Climatic Data Center (NCDC). Hourly surface data in TD-3505 format for calendar years 2002 through 2006 were obtained for the John Wayne Airport meteorological station located in Santa Ana, about 12 miles south of the proposed project site. The Fullerton Airport meteorological station is closer to the project site, but the data capture statistics for this station were insufficient to support modeling for regulatory permitting. John Wayne Airport is the next closest full-time meteorological monitoring station to the project site, and meteorological conditions at the two locations would be expected to be very similar. Data capture at John Wayne Airport for 2002 through 2006 was adequate to support regulatory modeling, so surface data for these years were selected for the current modeling analysis. Concurrent upper air sounding data collected at Miramar Naval Air Station near San Diego were used with the John Wayne surface data to run the AERMET preprocessor program to generate an AERMOD-ready meteorological input file for the selected 5-year period.

The meteorological data recorded at John Wayne Airport are acceptable to represent dispersion conditions at the CPP facility for two reasons: proximity and terrain similarity. The terrain immediately surrounding the proposed project site can be categorized as a flat or gradually sloping urban area. The terrain around the John Wayne Airport is also a relatively flat or gradually sloping urban area; thus, the land use and the location with respect to near-field terrain features are similar. Additionally, there are no significant terrain features separating the John Wayne Airport from the project site that would cause differences in wind or temperature conditions between these respective areas. Therefore, the 5 years of meteorological data selected from the John Wayne International Airport were determined to be representative for purposes of evaluating the proposed project's air quality impacts.

The Miramar Naval Air upper air data monitoring station is located approximately 78 miles southeast of proposed project site. This is the closest upper air station with sufficient data collection for the same years represented in the selected surface data. Therefore data from Miramar were determined to be the most representative data available for use in this modeling analysis.

Figure 6.2-2 presents the annual windrose based on the 2002-2006 meteorological data from the John Wayne Airport. Seasonal windroses based on the 5 years of John Wayne Airport surface meteorological data are provided as Appendix B-1. Winds for all seasons and all years blow predominantly from the southwest, although the directional pattern is more variable during the winter.

6.2.2.3.4 Receptor Locations. The receptor grids used in the AERMOD modeling analyses for operational emission sources were as follows:

- 25-meter spacing along the fence line and extending from the fence line out to 100 meters beyond the property line
- 100-meter spacing from 100 m to 1 kilometer (km) beyond the property line
- 500-meter spacing within 1 to 5 km of property line
- 1,000-meter spacing within 5 to 10 km of property line

During the refined modeling analysis for operational proposed project emissions, if a maximum predicted concentration for a particular pollutant and averaging time was located within the portion of the receptor grid with spacing greater than 25 meters, a supplemental dense receptor grid was placed around the original maximum concentration point and the model was rerun. The dense grid uses 25-meter spacing and extends to the next grid point in all directions from the original point of maximum concentration.

Due to the large computation time required to run AERMOD, this receptor grid, with the additional nested grid of more densely spaced points, when necessary, was determined to best balance the need to predict maximum pollutant concentrations and allow the all operational modeling runs to be completed in a timely manner.

For modeling construction impacts, the receptors are spaced at 25-meter intervals from the boundary of the project site and linears out to a distance of one kilometer. This smaller receptor grid is adequate to ensure that maximum impacts are addressed, since construction emissions occur at or near ground level.

Refer to Figures 6.2-1 and 6.2-2 for a vicinity map and detailed project plot plan of the operational CPP facility. Universal Transverse Mercator (UTM) coordinates were used to identify receptor locations, as well as those of project emission sources and structures. The

CAAQS and NAAQS apply to all locations at and beyond the proposed project fenceline (i.e., wherever public access is not under the control of the CPP). The CAAQS and NAAQS are not evaluated on the property controlled by the CPP. Near-field and far-field receptor grids used in the AERMOD analyses are shown in Figures 6.2-3 and 6.2-4, respectively.

6.2.2.3.5 Construction Impacts Modeling. Section 6.2.2.1 describes the development of proposed project emissions estimates for the planned 12-month construction and commissioning period. For purposes of evaluating construction air quality impacts, it is useful to break the construction schedule into a sequence of essentially non-overlapping phases, each occurring on specific areas of the proposed project site and with characteristic equipment and vehicle requirements. An Excel workbook was created to estimate pollutant emissions from construction activities, with separate worksheets for the equipment exhaust and fugitive dust emissions associated with short-term and annual construction activities. Emissions from worker commuter trips to and from the project site during specific construction activities were also included (see Appendix B-2).

Modeling was conducted for worst case short-term (1-hour to 24-hour) construction emissions scenarios using the onsite construction equipment from Month 1 in combination with the linear construction equipment from Month 5. Annual emissions were modeled based on emissions calculated for the entire 12-month construction period.

All construction activities were assumed to occur during a 14-hour workday. The OLM option of AERMOD was used to account for the role of ambient ozone levels on the atmospheric conversion rate NO_X emissions (initially mostly in the form of NO) to NO_2 (the pollutant addressed by ambient standards). The record of hourly ozone measurements at the SCAQMD Anaheim-Pampas Lane monitoring station during the same 5 years of the meteorological input data set was used to support the OLM calculations.

6.2.2.3.6 Turbine Impact Screening Modeling. As described previously, a screening modeling analysis was performed to determine which CTG operating mode and stack parameters would produce worst-case offsite impacts (i.e., maximum ground-level concentrations for each pollutant and averaging time). Only the emissions from the CTGs with and without cooling were considered in this preliminary modeling step. The screening modeling used AERMOD, as described in the previous sections. Building-wake information and the receptor grid described above were also used. All 5 years of meteorological data were used in the screening analysis.

The AERMOD model simulated the dispersion of natural gas combustion emissions from four 11.7-foot-diameter (3.56 meters), 86-foot-tall (26.21 meters) stacks for the CTG units. The stacks were modeled as point sources at their proposed locations within the proposed project site. Table 6.2-23 summarizes the CTG screening results for the different CTG operating loads and ambient temperature condition. First, the model was run with unit

TABLE 6.2-23
CTGS SCREENING MODELING RESULTS – NORMAL AND OPERATIONAL EMISSIONS PER CTG (STACK PARAMETERS)

	Ambient Temperature 109ºF – 15% RH			Ambient Temperature 59ºF – 60% RH			Ambient Temperature 38ºF – 72% RH		
	Case 1	Case 2	Case 3	Case 4[1]	Case 5	Case 6	Case 7	Case 8	Case 9
CTG Load Level	100	75	50	100	75	50	100	75	50
Chiller and Cooler Status	ON	ON	NONE	ON	NONE	NONE	NONE	NONE	NONE
Stack Outlet Temperature (°F)	841.6	858.9	832.6	838.6	785.5	754.2	836.7	759.9	710.4
Stack Outlet Temperature (°K)	722.93	732.54	717.93	721.26	691.76	674.37	720.21	677.54	650.04
Stack Exit Velocity (m/s)	27.742	23.930	19.751	28.032	23.990	20.198	28.132	24.196	20.298
CTG Output (MW)	50.1	37.7	25.1	50.9	38.2	25.4	50.9	38.3	25.5
Emissions Per CTG									
NO_X (lb/hr)	3.99	3.19	2.40	4.05	3.20	2.38	4.03	3.18	2.39
CO (lb/hr)	6.28	5.01	3.78	6.36	5.01	3.75	6.34	5.00	3.76
SO_2 (lb/hr)	0.33	0.27	0.20	0.34	0.27	0.20	0.34	0.27	0.20
PM_{10} (lb/hr)	2.99	2.39	1.80	3.04	2.40	1.79	3.03	2.39	1.80
NO_X (g/s)	0.503	0.402	0.303	0.511	0.403	0.301	0.509	0.401	0.301
CO (g/s)	0.792	0.632	0.476	0.802	0.632	0.473	0.799	0.631	0.474
SO_2 (g/s)	0.042	0.034	0.025	0.043	0.034	0.025	0.043	0.034	0.025
PM_{10} (g/s)	0.377	0.302	0.227	0.383	0.302	0.226	0.382	0.301	0.227
Model Results - Maximum X/Q concentration ($\mu g/m^3$/(4 g/s) predicted from AERMOD									
1 hour	13.4694	15.1354	17.6433	13.357	15.2916	17.5854	13.3202	15.2574	17.6603
3 hour	10.715	12.1543	14.7253	10.6348	12.3698	14.693	10.6093	12.3385	14.7795
8 hour	10.0142	11.3547	13.7652	9.94393	11.56	13.7366	9.92183	11.5531	13.8616
24 hour	4.8488	5.46301	6.70723	4.8136	5.56745	6.7075	4.80273	5.56493	6.76731
Annual	0.64938	0.74141	0.89909	0.64388	0.76408	0.91302	0.64223	0.76732	0.9299

TABLE 6.2-23 (CONTINUED)
CTGS SCREENING MODELING RESULTS – NORMAL AND OPERATIONAL EMISSIONS PER CTG (STACK PARAMETERS)

		Ambient Temperature 109ºF – 15% RH			Ambient Temperature 59ºF – 60% RH			Ambient Temperature 38ºF – 72% RH		
		Case 1	Case 2	Case 3	Case 4[1]	Case 5	Case 6	Case 7	Case 8	Case 9
Maximum Concentration (μg/m³) predicted per Pollutant Normal Operations										
NO_2	1 hour	6.778	6.090	5.346	6.820	6.162	5.286	6.778	6.123	5.320
	Annual	0.327	0.298	0.272	0.329	0.308	0.274	0.327	0.308	0.280
CO	1 hour	10.671	9.562	8.399	10.714	9.669	8.316	10.648	9.627	8.366
	8 hour	7.933	7.174	6.553	7.977	7.309	6.496	7.931	7.290	6.566
SO_2	1 hour	0.568	0.510	0.448	0.571	0.517	0.444	0.568	0.514	0.447
	3 hour	0.452	0.410	0.374	0.455	0.418	0.371	0.453	0.415	0.374
	24 hour	0.204	0.184	0.170	0.206	0.188	0.169	0.205	0.187	0.171
	Annual	0.027	0.025	0.023	0.028	0.026	0.023	0.027	0.026	0.024
PM_{10}	24 hour	1.830	1.648	1.525	1.843	1.684	1.516	1.833	1.677	1.533
	Annual	0.245	0.224	0.204	0.247	0.231	0.206	0.245	0.231	0.211

Notes:

[1] This data is based on ISO conditions to the turbine and is not intended to be used to determine compliance with SCAQMD Rule 1309.1's pounds per MW limit.

SO_2 uses long-term fuel sulfur content.

Bold = highest concentration for that pollutant and averaging time.

All particulate matter (PM) emissions from CTGs are assumed to be both PM_{10} and $PM_{2.5}$.

CO = carbon monoxide.

ºF = degrees Fahrenheit.

g/s = grams per second.

μg/m³ = micrograms per cubic meter.

NO_X = nitrogen oxide(s).

PM_{10} = particulate matter less than 10 microns in diameter.

SO_2 = sulfur dioxide.

emissions (1.0 grams per second) from each stack to obtain normalized concentrations that are not specific to any pollutant. CTG and control equipment vendor data used to derive the stack parameters for the different operating conditions evaluated in this screening analysis are included in Appendix B-3.

The maximum X/Q concentrations predicted to occur offsite with unit turbine emission rates for each of the nine operating conditions shown in Table 6.2-23 were then multiplied by the corresponding turbine mass emission rates for specific pollutants to obtain the ground level concentrations. The highest resulting concentration value for each pollutant and averaging time was then identified (see bolded values in the bottom section of the table).

The principal purpose of the turbine screening modeling analysis is to select stack parameters for use in subsequent refined modeling. Specifically, the stack parameters associated with the maximum predicted impacts for each pollutant and averaging time were used in all simulations of the refined AERMOD analyses, which are described in the next subsection. Note that the lower exhaust temperatures and flow rates at reduced turbine loads correspond to reduced plume rise, and could in some cases result in higher offsite pollutant concentrations at ground level than the higher baseload emissions. However, the results in Table 6.2-23 indicate that maximum impacts from the CPP turbines for all pollutants and averaging times will occur with all turbines operating at 100 percent load with an ambient temperature of 59ºF. Model input and output files for the screening modeling analysis are included with those from all other modeling tasks on the Air Quality and Public Health Modeling DVDs that are provided separately with this AFC.

6.2.2.3.7 Refined Modeling. A refined modeling analysis was performed to estimate offsite criteria pollutant impacts from operational emissions from all sources of the proposed project. The modeling was performed by means of the AERMOD dispersion model, as described in previous sections, using 5 years of hourly meteorological input data. Impacts for each pollutant were modeled assuming the worst-case CTG emissions corresponding to each averaging time and the turbine stack parameters that were determined in the turbine screening analysis (see previous subsection), as well as the maximum contributions from other emission sources of the operational proposed project (i.e., the black start generator engine and chiller cooling tower). The maximum mass emission rates that would occur over each averaging time, whether due to CTG startups, normal operations, CTG shutdowns, or a plausible combination of these activities, were used in all refined modeling analyses (see Table 6.2-18). Operational emission rate calculations and assumptions used for all pollutants and averaging times are documented in Appendix B-3.

6.2.2.4 Modeling Results – Compliance with Ambient Air Quality Standards

Air dispersion modeling was performed according to the methodology described in Section 6.2.2.3 to evaluate the maximum increase in ground-level pollutant concentrations

resulting from proposed project emissions, and to compare the maximum predicted impacts, including representative worst-case background pollutant levels, with applicable short-term and long-term CAAQS and NAAQS. The impacts from construction activities and plant operations were analyzed separately, because they would occur during different time periods. The same 5-year record of hourly meteorological data described in Section 6.2.2.3 was used in the AERMOD modeling to evaluate both construction and operational impacts.

In evaluating both construction and operational impacts, the AERMOD model was used to predict the increases in criteria pollutant concentrations at all receptor concentrations due to project emissions only. Next, the maximum modeled incremental increases for each pollutant and averaging time were added to the maximum background concentrations, based on air quality data collected at the most representative monitoring stations during the last 3 years (i.e., 2004 through 2006). These background concentrations are presented and discussed in Section 6.2.1.2. The resulting total pollutant concentrations were then compared with the most stringent CAAQS or NAAQS.

6.2.2.4.1 Construction Impacts. Previous sections on the development of project construction emissions estimates described how Month 1 and Month 5 of the construction schedule were selected to represent worst-case emission conditions that would produce maximum short-term impacts to air quality. Annual impacts were modeled with the combined emissions that would occur over the entire 12 month construction period. The construction modeling results are presented in Table 6.2-24. Some notes regarding the modeling results for specific pollutants are provided below.

As indicated in Table 6.2-24, high PM_{10} and $PM_{2.5}$ background concentrations have been recorded frequently at Anaheim-Pampas Lane monitoring stations during recent years. It is highly probable that these conditions result primarily from mobile pollution sources using the nearby freeways and surface streets. The predicted contribution of the proposed construction activities would be minor by comparison with these sources, but would have the potential to contribute temporarily to elevated levels of PM_{10} and $PM_{2.5}$ if construction occurs during a period of high background concentrations.

The AERMOD model with the OLM option predicted maximum 1-hour NO_2 concentration due to project construction emissions which, when added to conservative background NO_2 concentrations from the nearest SCAQMD monitoring stations, are below the CAAQS. The maximum predicted annual NO_2 concentration (without the OLM option) plus conservative background values are also below the applicable NAAQS and CAAQS. Predicted maximum impacts for CO and SO_2 are also well below the most stringent ambient standards. Input and output files for all construction simulations are provided on DVDs submitted with this AFC.

6.2.2.4.2 Normal Operational Impacts. As described previously, the emissions and stack parameters used in the AERMOD simulations for the proposed project operations were

TABLE 6.2-24
MAXIMUM MODELED CRITERIA POLLUTANT IMPACTS DUE TO PROPOSED PROJECT SITE DEMOLITION, GRADING AND DRAINAGE, AND LINEAR CONSTRUCTION (SHORT-TERM IMPACT ESTIMATES BASED ON MONTH 1 SITE CONSTRUCTION AND MONTH 5 LINEAR CONSTRUCTION ACTIVITIES)

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	Background[1] ($\mu g/m^3$)	Maximum Total Predicted Concentration ($\mu g/m^3$)	Most Stringent AAQS ($\mu g/m^3$)	UTM Coordinates	
						East (m)	North (m)
Construction Impacts							
CO	1 hour	63.0	8,510	8,573	23,000	420,425	3,746,600
	8 hour	32.9	4,544	4,577	10,000	420,363	3,746,712
NO_2	1 hour[2]	105.2	229.1	334.3	470[4]	420,406	3,746,652
	Annual	5.8	46.7	52.5	100[4]	420,406	3,746,652
PM_{10}	24 hour	43.7	104.0[3]	147.7	50	420,400	3,746,674
	Annual	2.4	33.9[3]	36.3	20	420,400	3,746,674
$PM_{2.5}$	24 hour	10.11	58.9[3]	69.0	35	420,400	3,746,674
	Annual	0.75	19.0[3]	19.8	12	420,400	3,746,674
SO_2	1 hour	0.10	81.2	81.3	655	420,425	3,746,600
	3 hour	0.08	52.0	52.1	1,300	420,387	3,746,719
	24 hour	0.02	21.0	21.0	105	420,340	3,746,705
	Annual	0.006	5.3	5.3	80	420,406	3,746,652

Notes:

1 Background represents the maximum values measured at the monitoring stations described in previous sections, for 2004-2006.

2 Results for NO_2 during construction used OLM with ambient ozone data collected at the Anaheim-Pampas Lane monitoring station for the years 2002 through 2006.

3 PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.

4 In February 2007, the CARB approved new, more stringent CAAQS for NO_2. In the units used in this table, the new standards, which are expected to take effect fully in late 2007, are 338 $\mu g/m^3$ (1 hour) and 56 $\mu g/m^3$ (annual).

$\mu g/m^3$ = micrograms per cubic meter.
AAQS = Ambient air quality standard for the averaging period.
CO = carbon monoxide.
NA = Not applicable.
NO_2 = nitrogen dioxide.
OLM = ozone limiting method.
PM_{10} = particulate matter less than or equal to 10 microns in diameter.
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter.
SO_2 = sulfur dioxide.
UTM = Universal Transverse Mercator.

selected to ensure that the maximum potential impacts would be addressed for each pollutant and averaging time corresponding to an AAQS. The emissions used for each pollutant and averaging time are explained and quantified in Table 6.2-18. This subsection describes the maximum predicted operational impacts of the proposed project for normal simple-cycle Table 6.2-25 summarizes the maximum predicted criteria pollutant concentrations due to normal operations of the proposed project. Table 6.2-25 also shows that the modeled impacts due to the proposed project emissions, in combination with conservative background concentrations, would not cause a violation of any NAAQS and would not significantly operating conditions. Commissioning impacts, which would occur on a temporary, one-time basis and would not be representative of normal operations, were addressed separately, as described in the Section 6.2.2.4.3, contribute to existing violations of the federal and state PM_{10} and $PM_{2.5}$ standards. In addition, as described in Section 6.2.4, all of the proposed project's operational emissions of nonattainment pollutants and their precursors would be offset to ensure a net air quality benefit.

SCAQMD Rule 1303 establishes incremental concentration limits for nonattainment pollutants due to individual source units. These limits are presented in Table 6.2-25. In the case of 24-hour PM_{10} impacts, the permissible limit is 2.5 $\mu g/m^3$. Modeling results indicate the highest PM_{10} 24-hour offsite concentrations due to the four individual CTGs, black start diesel generator, and the chillers range from a low of 0.0842 $\mu g/m^3$ (black start diesel generator engine) to a high of 0.478 $\mu g/m^3$ (each individual CTG). These values are all below the SCAQMD 24-hour PM_{10} Significant Change level. In addition, the maximum annual PM_{10} value for all four CTGs combined would be below the SCAQMD annual PM_{10} Significant Change level for individual permit units of 1 $\mu g/m^3$.

In order to have access to the emission reduction credits in the SCAQMD Priority Reserve (Rule 1309.1) projects within an Environmental Justice Area (EJA) that are less than or equal to 500 MW must meet a facility wide PM_{10} limit of 5 $\mu g/m^3$ in 24 hours and 0.75 $\mu g/m^3$ annually. The modeling results presented in Table 6.2-25 show that these limits are easily met.

Other important results of the operational modeling are summarized as follows:

- The locations of predicted maximum impacts vary by pollutant and averaging time, but in all cases would be within 1,200 feet from the proposed project facility fenceline.
- The peak annual PM_{10} and $PM_{2.5}$ impact are predicted to occur approximately 700 feet northeast of the property line of the proposed project opposite Unit 4.
- The peak annual SO_2 and NO_2 impacts are predicted to occur approximately 1,000 feet northeast of the property line of the proposed project opposite Unit 4.
- Maximum 24-hour SO_2, PM_{10}, and $PM_{2.5}$ impacts are predicted to occur approximately 570 feet southwest of the southwest fenceline.

TABLE 6.2-25
AERMOD MODELING RESULTS FOR NORMAL PROJECT OPERATIONS
(ALL PROJECT SOURCES COMBINED)

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	SCAQMD Significant Change[6] (µg/m³)	Background Concentration (µg/m³)[1]	Total Concentration (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)	Maximum UTMX NAD27 (m)	Maximum UTMY NAD27 (m)
NO_2	1-hour[2]	106.2	20	229.1	335	NA	470[5]	420,322	3,746,505
	Annual[2]	0.1	1	46.7	47	100	NA[5]	420,600	3,746,900
SO_2	1-hour	2.3	NA	81.2	83	NA	655	420,175	3,746,475
	3-hour	1.8	NA	52.0	54	1300	NA	420,150	3,746,450
	24-hour	0.8	NA	21.0	22	365	105	420,100	3,746,400
	Annual	0.01	NA	5.3	5	80	NA	420,600	3,747,000
CO	1-hour	122.3	1,100	8,510	8,632	40,000	23,000	420,299	3,746,498
	8-hour	10.0	500	4,544	4,554	10,000	10,000	420,276	3,746,491
PM_{10}	24-hour[3,4]	1.9	2.5	104.0	106	150	50	420,100	3,746,400
	Annual[3,4]	0.035	1	33.9	34	NA	20	420,500	3,746,900
$PM_{2.5}$	24-hour	1.9	NA	58.9	61	35	NA	420,100	3,746,400
	Annual	0.035	NA	19.0	19	15	12	420,500	3,746,900

Notes:

1 Background represents the maximum values measured at the monitoring stations identified in Section 6.2.1.2.

2 Results for NO_2 during operations used ozone limiting method (OLM) with ambient ozone data collected at the Anaheim-Pampas Lane monitoring station for the years 2002 through 2006.

3 PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.

4 All PM_{10} emissions from proposed project sources were also considered to be $PM_{2.5}$.

5 In February 2007, the CARB approved new, more stringent CAAQS for NO_2. In the units used in this table, the new standards, which are expected to take effect fully in late 2007, are 338 µg/m³ (1-hour) and 56 µg/m³ (annual).

6 Significant change value is applicable only for pollutants that exceed state or federal standards.

- Maximum hourly concentrations for NO_2, and CO and maximum 8-hour CO are predicted to occur in different locations on the fenceline south of the property boundary near Unit 1.
- Maximum 1-hour and 3-hour concentrations for SO_2 are predicted to occur approximately 250 and 350 feet, respectively, west of the southwest corner of the site. Figure 6.2-5 shows the locations of the maximum predicted operational impacts for all pollutants and averaging times.

6.2.2.4.3 Turbine Commissioning. Each of the proposed CTGs may need to be operated for up to 104 hours with partially abated emissions for purposes of commissioning the new generating equipment. The expected sequence of commissioning tests and the associated emissions during each stage of CTG commissioning are presented in Section 6.2.2.2. Separate modeling was conducted using AERMOD to evaluate maximum short-term effects of these activities in terms of the impacts on offsite 1-hour NO_2 concentrations and 1-hour and 8-hour CO concentrations. These are the pollutants (along with ROCs, which are not modeled) for which commissioning emissions would be expected to be significantly higher than during normal operations because the SCR and oxidation catalyst emission control systems may not be operating during portions of the commissioning tests. Emissions of SO_2 and PM depend primarily on the rate of fuel combustion, and would not be affected by the availability of the SCR and oxidation catalyst. Thus, emissions of these pollutants during commissioning are not expected to exceed the levels that would occur during full-load normal operations of the CTGs, and separate modeling for commissioning impacts on SO_2 and PM levels is unnecessary.

Stack exhaust flow rates and temperatures for individual CTG commissioning tests were presented in Table 6.2-20, along with the corresponding NO_X and CO emission rates. Modeling was conducted for the test that was expected to produce the highest offsite concentrations at ground level (i.e., the test with the highest emission rate in combination with the lowest exhaust flow and temperature). For both the CO and NO_X modeling, the emissions and stack parameters for the first fire, labeled "First fire the unit and then shutdown to check for leaks, etc." in Table 6.2-20 were used to evaluated the maximum impacts from commissioning.

Since the other phases of commissioning have much lower NO_X and CO emissions, only the first fire case was examined. The model was conservatively run to determine if all 4 CTGs could be tested simultaneously, and the results show that all four CTGs could undergo testing without causing the NO_2 or CO ambient standards to be exceeded. However, each CTG is expected to be tested individually. Table 6.2-26 shows the results of the simulations for worst-case CTG commissioning test for four CTG. The tabulated impacts are the highest concentrations for the indicated averaging periods that are predicted by AERMOD to occur for the worst-case emission condition using 5 years of hourly meteorological input data.

TABLE 6.2-26
MODELING RESULTS FOR COMMISSIONING OF PROPOSED CTGS

Modeling Scenario	Pollutant	Averaging Period	Maximum Estimated Impact ($\mu g/m^3$)	Background[2] ($\mu g/m^3$)	Total Predicted Concentration ($\mu g/m^3$)	Most Stringent Standard ($\mu g/m^3$)
Worst-case CTG commissioning tests[1]	CO	1 hour	123	8,510	8,633	23,000
		8 hour	104	4,544	4,648	10,000
	NO_2	1 hour	29.1	229.1	258.2	470[3]

Notes:

1 Indicated maximum impacts are the higher of the maxima obtained from separate simulations for worst-case commissioning emissions for four turbines.

2 Background represents the maximum values measured at the monitoring stations presented in Section 6.2.1.2.

3 In February 2007, the CARB approved new, more stringent CAAQS for NO_2. In the units used in this table, the new 1-hour standard, which is expected to take effect fully in late 2007, is 338 $\mu g/m^3$.

$\mu g/m^3$ = micrograms per cubic meter.
CO = carbon monoxide.
NO_2 = nitrogen dioxide.

The commissioning modeling results demonstrate that when the maximum incremental commissioning impacts are added to applicable background concentrations and compared with the most stringent state or national ambient standards, no violation of the applicable AAQS for CO and NO_2 is predicted to occur.

6.2.2.4.4 Impacts for Nonattainment Pollutants and their Precursors. The emission offset program described in the SCAQMD Rules and Regulations was developed to facilitate net air quality improvement when new sources locate within the SCAQMD. Maximum potential project impacts of nonattainment pollutants (PM_{10}, $PM_{2.5}$, and ozone) and their precursors (NO_X, SO_2, and VOC) are required to be fully mitigated by emission offsets. The emission reductions associated with these offsets have not been accounted for in the modeled impacts noted above. Thus, the impacts indicated in the foregoing presentation of model results for the proposed project are considered to be significantly overestimated.

6.2.2.4.5 Effects on Visibility from Plumes. Modern simple-cycle power plants burning natural gas fuel emit PM at levels far below the concentration corresponding to visible smoke. Combustion sources also emit water vapor that sometimes may condense in the atmosphere to form visible plumes. However, the generally warm, dry conditions in Orange County are not conducive to lengthy visible stack plumes, particularly in the summer months when the plant is most likely to be operating. Cooling towers are another potential source of visible moisture plumes at power plants.

6.2.2.4.6 Sulfur and Nitrogen Deposition Analysis. A screening evaluation of potential impacts to sensitive flora and fauna in the vicinity of the proposed project was also performed. The screening evaluations were accomplished using the maximum predicted incremental annual average NO_2 and SO_2 concentrations due to normal proposed project operational emissions from the AERMOD model as summarized in Table 6.2-25. Estimated deposition rates were developed from these model results to support the analysis of the proposed project's biological impacts (see Section 6.6, Biological Resources).

Deposition rates due to the emissions from operation of the proposed project were estimated by assuming that, at the locations of the maximum predicted SO_2 and NO_2 ambient concentration impacts, all of the nitrogen and sulfur in these gases are converted to elemental sulfur and nitrogen in the particulate phase, which is then deposited on the ground. This is an extremely conservative assumption that would not physically occur. The deposition rates were calculated by multiplying the maximum modeled airborne concentration by a deposition velocity of 0.02 meters/second (m/s), which is consistent with California Air Pollution Control Officers Association (CAPCOA) guidelines for estimating deposition of particulate emissions from uncontrolled sources (CAPCOA, 1993). The portions of the deposition occurring as elemental nitrogen and sulfur are then calculated from the predicted annual ground-level concentrations of NO_2 and SO_2 based on the molecular weight ratios. Since these results were obtained by means of a simple straight-line Gaussian dispersion

model (i.e., AERMOD), they are considered to substantially overpredict actual deposition levels.

Based on the methodology described previously using predicted maximum annual average incremental NO_2 and SO_2 concentrations from normal project operations (from Table 6.2-25) and an assumed deposition velocity of 0.02 m/s, the highest predicted elemental nitrogen and sulfur annual deposition rates, which are predicted to occur approximately 1,000 feet northeast of the site (in the prevailing downwind direction) are as follows:

- Nitrogen: 0.192 kg/hectare/year
- Sulfur: 0.032 kg/hectare/year

This information is discussed in Section 7.2, Biological Resources, in terms of the potential for the predicted deposition rates to affect flora and fauna in the vicinity of the proposed project site.

6.2.2.5 Plume Visibility Impacts

SCAQMD Rule 1303(b)(5)(C)(i) requires a plume visibility analysis if the net emissions increase from a new source exceeds 15 tons per year (tpy) of PM_{10} or 40 tpy of NO_X, provided that the source is located within specified distances to the nearest boundary of a federal Class I area. The proposed project site is not within the specified distances from any Class I areas. In addition, the projected annual emissions of NO_X and PM_{10} from the operational CPP project are well below the above thresholds, as demonstrated in Table 6.2-25. Therefore, a visibility modeling analysis was not conducted.

6.2.3 Cumulative Impacts Analysis and Protocol

CEC requirements specify that an analysis may be required to determine the cumulative impacts of the proposed project and other projects within a 6-mile radius that have received construction permits but are not yet operational or that are in the permitting process at the time of the proposed project's AFC submittal. The cumulative impact analysis is intended to assess whether the combined emissions of these sources may cause or contribute to a violation of any AAQS.

A cumulative modeling analysis to evaluate the combined effects of pollutant emissions from the proposed project and other new or imminent emission sources within a 6-mile radius (if any) will be performed when sufficient information on these sources becomes available. A request has been made to SCAQMD for information on all new facilities within this radius that are either currently in the permitting process or under construction, or that obtained a Permit to Construct in 2006 or 2007. The required information for each such new source will include permitted emission rates, source location coordinates, and stack parameters required

for inclusion in the cumulative AERMOD simulations. When this information is received, it will be forwarded to CEC for approval as the basis for the cumulative analysis. The results of the final cumulative impact analysis will be reported under separate cover.

6.2.4 Mitigation Measures

This section discusses the mitigation measures proposed by the CPP that will be implemented to reduce project-related impacts to air quality.

AIR-1: Emission Offsets. The CPP is required to provide emissions offsets for maximum potential increases in emissions of nonattainment pollutants in excess of specified thresholds that would result from the operation of the proposed facility. Based on expected project emission levels, the proposed project will be required to supply offsets for NO_X and PM_{10}. Estimated annual emissions of these pollutants and VOCs due to project operations are summarized in Table 6.2-19. Under SCAQMD rules, offsets are required for the project's annual emissions of NO_X, VOC, PM_{10} or SO_2 in excess of four tons per year. Thus, based on the CPP annual emissions estimates in Table 6.2-19, offsets are not required for either SO_2 or VOC to meet SCAQMD requirements. Offsets will not be required for CO, because of the recent redesignation of the South Coast Air Basin to attainment for this pollutant. The CPP is exploring CEQA mitigation for its proposed VOC and SO_2 emissions, which may take the form of traditional ERCs or other mitigation programs.

Under SCAQMD rules, the proposed project offset requirements for PM_{10} will be determined based on the maximum expected monthly emissions (in pounds) divided by 30 (i.e., essentially the average daily emissions of the worst-case month). The offset ratio for emission reduction credits (ERCs) or Priority Reserve Credits is 1.2 to 1. NO_X Regional Clean Air Incentives Market (RECLAIM) credit requirements are calculated based on the expected annual project emissions of this pollutant using a one-to-one ratio. Because the proposed project site is located in the South Coast Air Basin, it is automatically a NO_X RECLAIM source.

Table 6.2-27 shows the operating parameters used to estimate emission offset requirements for the proposed project. Based on these assumptions and the proposed project equipment emissions data presented previously for normal operations and CTG startup/shutdown conditions, the expected offset requirements for the proposed project are shown in Table 6.2-28. The requirements for NO_X have been calculated in the form of annual RECLAIM credits. One-to-one offsets for the annual emissions of VOC and SO_X are also assumed to meet CEC requirements, as explained above. SCAQMD does not require offsets for PM_{10} emissions from cooling towers of the type that would be used for the proposed project.

The proposed project will purchase RECLAIM Trading Credits to offset annual NO_X emissions increases. The actual mix of emission credits that will be used to offset proposed

TABLE 6.2-27
BASIS FOR ESTIMATING EMISSION CREDIT REQUIREMENTS TO OFFSET PROPOSED PROJECT EMISSIONS

Emission Source	Combined Annual Operating Hours at 100% Capacity	Combined Annual Startups and Shutdowns (CTGs only)	Daily Operating Hours at 100% Capacity for Worst Month	Daily Startups/ Shutdowns for Worst Month (CTGs only)
CTGs 1-4	4,006	514	36	4
Cooling Tower for CTGs 1-4	4,006		24	
Black Start Engine	12		One 1-hour test on one day	

TABLE 6.2-28
ESTIMATED EMISSION OFFSET REQUIREMENTS FOR THE PROPOSED PROJECT EMISSIONS

Pollutant	CTGs	Black Start Engine	Total Emission Credits Required	Offset Requirement (offset ratio)
NO_X (lbs/year)	21,259	126.99	21,386	By SCAQMD RECLAIM (1:1)
VOC (lbs/year)	4,962	19.84	4,982	By CEC requirement (1:1)
SO_X (lbs/year)	5,676	0.07	5,676	By CEC requirement (1:1)
PM_{10} (lbs/day)	112.6	0.33	136	By SCAQMD – Priority Reserve (1.2:1)

Notes:
CTG = combustion turbine generator.
ERCs = emission reduction credits.
lbs/day = pounds per day.
NO_X = oxides of nitrogen.
VOC = volatile organic compounds.
SO_X = oxides of sulfur.
PM_{10} = particulate matter less than or equal to 10 microns in diameter.

project emissions for other pollutants will be determined based on availability and market conditions. One option is to create or purchase ERCs. SCAQMD regulations allow the use of interpollutant offsets in situations where one pollutant is a precursor to another. For example, since NO_X and SO_2 contribute to the formation of PM_{10}, extra NO_X and/or SO_2 ERCs could be used to offset some of the proposed project's PM_{10} emissions.

A complete discussion of the method for offsetting the CPP emissions is contained in the Confidential Offset Strategy, Appendix C, filed separately under a Request for Confidential Designation.

6.2.5 Best Available Control Technology Analysis

In accordance with the requirements of SCAQMD rules, the proposed project will be required to use Best Available Control Technology (BACT) to minimize emissions from the proposed combustion turbines, and the black start generator engine. A detailed BACT analysis was conducted to evaluate the available emission control options for the proposed project and is presented in Appendix B-6. A summary of the proposed BACT is provided below.

Table 6.2-29 presents the proposed BACT emission levels for the proposed project, based on the assessment described in Appendix B-6. Note that the proposed BACT level for NO_X emissions from the simple-cycle units is 2.5 parts per million by volume, dry (ppmvd) at 15 percent oxygen, although the applicant has agreed to meet a more stringent 2.3 ppmvd at 15 percent oxygen under certain ambient conditions (59 degrees F, 60 percent relative humidity and 14.7 psia pressure) as required to comply with the NO_X emission limit specified in SCAQMD's Priority Reserve Rule (1309.1), which was amended on August 3, 2007.

6.2.6 LORS

The applicable LORS related to the potential air quality impacts from the proposed project are described below. These LORS are administered (either independently or cooperatively) by the SCAQMD, USEPA Region IX, the CEC, and the CARB.

6.2.6.1 Federal

The federal Clean Air Act (CAA) of 1970, 42 United States Code 7401 et seq., as amended in 1977 and 1990, is the basic federal statute governing air pollution. The provisions of the CAA that are potentially relevant to this project are listed below and discussed in the following subsections:

- Air Quality Control Regions
- National Ambient Air Quality Standards
- Prevention of Significant Deterioration
- Acid Rain Program
- New Source Review
- New Source Performance Standards
- Maximum Achievable Control Technology Standards
- Title V Operating Permits
- Risk Management Program

TABLE 6.2-29
SUMMARY OF PROPOSED BACT

Pollutant	Control Technology	Concentration
CTGs		
NO_X	Water injection and SCR with ammonia injection	2.5 ppmvd[1] at 15% O_2 (1-hour average)
CO	Catalytic oxidation	6.0 ppmvd at 15% O_2 (1-hour average)
VOC	Catalytic oxidation	2.0 ppmvd at 15% O_2 (1-hour average)
SO_2	Pipeline quality natural gas	NA
PM_{10}	Pipeline quality natural gas	NA
Ammonia slip	Operational limitation	5.0 ppmvd at 15% O_2
Black Start Engine (1,141 horsepower)		
NO_X	EPA Tier II	6.4 g/ kW-hour
CO	EPA Tier II	3.5 g/kW-hour
VOC	EPA Tier II	1.0 g/kW-hour
SO_2	EPA Tier II	Diesel fuel with sulfur content no greater than 0.0015% by weight
PM_{10}	EPA Tier II	0.20 g/kW-hour

Notes:

[1] Applicant has committed to meet 2.3 ppmvd NO_X at 15% O_2 for the specific ambient conditions of 59 degrees F, 60% relative humidity and 14.7 psia pressure, as required to comply with the NO_X emission limit specified in SCAQMD's Priority Reserve Rule (1309.1).

BACT = Best Available Control Technology.
CO = carbon monoxide.
NA = not applicable.
NO_X = nitrogen oxides.
O_2 = oxygen.
PM_{10} = particulate matter less than or equal to 10 microns in diameter.
ppm = parts per million.
SCR = Selective catalytic reduction.
VOC = volatile organic compounds.
SO_2 = sulfur dioxide.

Applicable requirements of the State of California and the local SCAQMD are discussed in Sections 6.2.6.2 and 6.2.6.3, respectively, including regulations that apply to both construction and operations.

6.2.6.1.1 <u>Air Quality Control Regions</u>. Because air pollution is a regional problem and not limited to political or state boundaries, the CAA established Air Quality Control Regions (AQCR). This is a method of dividing the country into regional air basins. The proposed project site is located in the Metropolitan Los Angeles AQCR (40 CFR Part 81.17).

6.2.6.1.2 National Ambient Air Quality Standards. USEPA, in response to the federal CAA of 1970, established federal NAAQS in 40 CFR Part 50. The federal NAAQS include both primary and secondary standards for six "criteria" pollutants. These criteria pollutants are ozone, CO, NO_2, SO_2, PM_{10}, and lead.

Primary standards were established to protect human health, and secondary standards were designed to protect property and natural ecosystems from the effects of air pollution.

The 1990 Clean Air Act Amendments (CAAA) established attainment deadlines for all designated areas that were not in attainment with the federal NAAQS. In addition to the federal NAAQS described above, a new federal standard for $PM_{2.5}$ and a revised ozone standard were promulgated in July 1997. The new federal standards were challenged in a court case during 1998. The courts required revisions in both standards before USEPA could enforce them. The U.S. Supreme Court upheld an appeal of the District Court decision in February 2001. Under an interim policy, the preexisting federal PM_{10} and 1-hour ozone standards would continue to be implemented for the next several years until any required actions by USEPA were completed. In 1997, USEPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. In 2006, the federal annual PM_{10} standard was revoked by the federal USEPA due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution. The 3-year average of the 98th percentile of 24-hour PM_{10} concentrations (35 $\mu g/m^3$) was effective on December 17, 2006. The State of California has adopted CAAQS that are in some cases more stringent than the federal NAAQS. The CAAQS and NAAQS relevant to the proposed project are summarized in Table 6.2-30.

The USEPA, CARB, and the local air pollution control districts determine air quality attainment status by comparing local ambient air quality measurements from the state or local monitoring stations with the CAAQS and NAAQS. Those areas that meet AAQS are classified as "attainment" areas; areas that do not meet the standards are classified as "nonattainment" areas. Areas that have insufficient air quality data may be identified as unclassifiable areas. These attainment designations are determined on a pollutant-by-pollutant basis. The proposed project site is designated a federal nonattainment area for ozone, PM_{10} and $PM_{2.5}$, based on air quality monitoring data showing exceedances of the federal standards. The proposed project vicinity is designated a state nonattainment area for ozone and PM_{10} based on air quality monitoring data showing exceedances of the state standards. Table 6.2-31 presents the attainment status (both federal and state) for Orange County.

As mentioned above, both USEPA and CARB are involved with air quality management in the South Coast Air Basin, along with SCAQMD. The area of responsibility for each of these agencies is described below.

TABLE 6.2-30
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3,4]	Secondary[3,5]	Concentration[3]
Ozone (O_3)	1-Hour	Revoked[6]	Same as Primary Standard	0.09 ppm (180 µg/m^3)
	8-Hour	0.08 ppm	Same as Primary Standard	0.07 ppm (137 µg/m^3)
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)	None	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 µg/m^3)	Same as Primary Standard	-
	1-Hour	-	Same as Primary Standard	0.25 ppm (470 µg/m^3)
Sulfur Oxides (SO_2)	Annual Average	0.03 ppm (80 µg/m^3)	-	-
	24-Hour	0.14 ppm (365 µg/m^3)	-	0.04 ppm (105 µg/m^3)
	3-Hour	-	0.5 ppm (1,300 µg/m^3)	-
	1-Hour	-	-	0.25 ppm (655 µg/m^3)
Suspended Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	Same as Primary Standard	50 µg/m^3
	Annual Arithmetic Mean	Revoked[7]	Same as Primary Standard	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)[8]	24-Hour	35 µg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	15 µg/m^3	Same as Primary Standard	12 µg/m^3
Lead (Pb)	30-Day Average	-	-	1.5 µg/m^3
	Quarterly Average	1.5 µg/m^3	Same as Primary Standard	-
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards	No Federal Standards	0.03 ppm (42 µg/m^3)
Sulfates (SO_4)	24-Hour	No Federal Standards	No Federal Standards	25 µg/m^3
Visibility Reducing Particles	8-Hour (10 a.m. – 6 p.m., Pacific Standard Time)	No Federal Standards	No Federal Standards	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

TABLE 6.2-30 (CONTINUED)
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Notes:

1 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact USEPA for further clarification and current federal policies.

2 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

5 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

6 On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas.

7 Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} standard in 2006 (effective December 17, 2006).

8 To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 $\mu g/m^3$ (effective December 17, 2006).

$\mu g/m^3$ = micrograms per cubic meter.
mg/m^3 = milligram per cubic meter.
ppm = parts per million.
Source: USEPA-NAAQS (http://www.epa.gov/air/criteria.html); CARB-CAAQS (http://www.arb.ca.gov/aqs/aaqs2.pdf).

TABLE 6.2-31
ATTAINMENT STATUS FOR ORANGE COUNTY (SOUTHWEST PORTION OF SOUTH COAST AIR BASIN) WITH RESPECT TO FEDERAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Federal Attainment Status	State Attainment Status
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Unclassified	Attainment

Notes:
CO = carbon monoxide.
NO_2 = nitrogen dioxide.
SO_2 = sulfur dioxide.
PM_{10} = particulate matter less than 10 microns in diameter.
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter.
Source: National Area Designations and Proposed 2006 State Area Designations, CARB (http://www.arb.ca.gov/desig/adm/adm.htm).

USEPA has ultimate responsibility for ensuring, pursuant to the CAAA, that all areas of the United States meet, or are making progress toward meeting, the federal NAAQS. The State of California falls under the jurisdiction of USEPA Region IX, which is headquartered in San Francisco. USEPA requires that all states submit state implementation plans (SIPs) for nonattainment areas that describe how the federal NAAQS will be achieved and maintained. Attainment plans must be approved by CARB before they are submitted to USEPA.

Regional or local air quality management districts (or air districts) such as SCAQMD are responsible for preparation of plans for attainment of federal and state standards. CARB is responsible for overseeing attainment of the CAAQS, implementation of nearly all phases of California's motor vehicle emissions program, and oversight of the operations and programs of the regional air districts. Each air district is responsible for establishing and implementing rules and control measures to achieve air quality attainment within its district boundaries. The air district also prepares an air quality management plan (AQMP) that includes an inventory of all emission sources within the district (both manmade and natural), a projection of future emissions growth, an evaluation of current air quality trends, and an assessment of any rules or control measures needed to attain the federal and state AAQS. This AQMP is submitted to CARB, which then compiles the plans from all air districts within the state into the SIP. The responsibility of the air districts is to maintain an effective permitting system for existing, new, and modified stationary sources, to monitor local air quality trends, and to

adopt and enforce such rules and regulations as may be necessary to achieve the federal and state AAQS.

6.2.6.1.3 Prevention of Significant Deterioration Requirements. In addition to the ambient air quality standards described above (NAAQS), the federal Prevention of Significant Deterioration (PSD) program has been established to protect deterioration of air quality in those areas that already meet the NAAQS. Specifically, the PSD program establishes allowable concentration increases for attainment pollutants due to new emission sources that are classified as major sources. These increases allow economic growth, while preserving the existing air quality, protecting public health and welfare, and protecting Class I areas (national parks and wilderness areas).

The PSD regulations define a "major stationary source" as any source type belonging to a list of 28 source categories that emits, or has the "potential to emit" 100 tons per year or more of any pollutant regulated under the CAA, or any other source type that has the potential to emit such pollutants in amounts equal to or greater than 250 tons per year. If a source is considered major for PSD purposes because of one pollutant, then PSD review is applicable for those other pollutants emitted from the source in amounts greater than the PSD significance levels. The PSD regulations require major stationary sources to undergo a preconstruction review that includes an analysis and implementation of BACT, a PSD increment consumption analysis, an ambient air quality impact analysis, and analysis of air quality-related values (AQRVs) (i.e., impacts on soils, visibility and vegetation). The proposed project is not subject to these requirements.

The incremental proposed project emissions for CO, SO_2, NO_X, PM_{10}, and VOC are as shown in Table 6.2-32 and compared with the PSD thresholds. The project emissions of all pollutants would be far below these PSD significant thresholds. Thus, the project would not trigger PSD.

6.2.6.1.4 Acid Rain Program Requirements. Title IV of the CAAA applies to sources of air pollutants that contribute to acid rain formation, including certain sources of SO_2 and NO_X emissions. Title IV is implemented by the USEPA under 40 CFR 72, 73, and 75. Allowances of SO_2 emissions are set aside in 40 CFR 73. Sources subject to Title IV are required to obtain SO_2 allowances, to monitor their emissions, and obtain SO_2 allowances when a new source is permitted. Sources such as the proposed project that use pipeline-quality natural gas are exempt from many of the acid rain program requirements. However, these sources must still estimate SO_2 and carbon dioxide (CO_2) emissions, and monitor NO_X emissions with certified CEMS. All subject facilities must submit an acid rain permit application to USEPA within 24 months of commencing operation.

6.2.6.1.5 New Source Review Requirements. The federal CAA, USEPA regulations, and the California CAA establish the criteria for siting new and modified emission sources. The

TABLE 6.2-32
PSD EMISSION THRESHOLD TRIGGERS
FOR NEW STATIONARY SOURCES

Pollutant	Significant Thresholds (tpy)	Project Emissions (tpy)	PSD Triggered by Project?
CO	250	14.54	No
SO_2	250	2.84	No
NO_X	250	10.69	No
PM_{10}	250	6.37	No
VOCs	250	2.49	No

Notes:
Tpy = Tons per year.
CO = carbon monoxide.
SO_2 = sulfur dioxide.
NO_X = nitrogen oxide(s).
PM_{10} = particulate matter less than 10 microns in diameter.
VOCs = volatile organic compounds.
Source: SCAQMD rule 1702 (http://www.aqmd.gov/rules/reg/reg17/r1702.pdf).
Project emissions include all emissions from natural gas.

federally mandated process for permitting new or modified sources in federal nonattainment areas is referred to as Nonattainment New Source Review (NNSR). SCAQMD is responsible for NNSR rule development and enforcement for sources in the South Coast Air Basin. The SCAQMD NNSR rules are contained in Regulation XIII, Rules 1301-1313. The rules require that BACT must be applied to any new source with emissions above the levels specified in Regulation XIII or Rule 2005. Second, all potential emission increases from the sources above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of ERCs, per Rule 1309, (see Section 6.2.4). Third, an ambient air quality impact assessment must be conducted to confirm that the proposed project does not cause or contribute to a violation of a federal or state AAQS (see Section 6.2.2.4) or jeopardize public health (see Section 6.16). Finally, the CPP must certify that all major sources owned or operated in the State of California are either in compliance or on an approved schedule for compliance with applicable air quality regulations.

6.2.6.1.6 <u>New Source Performance Standards</u>. New source performance standards (NSPS) have been established by USEPA to limit air pollutant emissions from certain categories of new and modified stationary sources. The NSPS regulations are contained in 40 CFR Part 60 and cover many different industrial source categories. Stationary gas turbines are regulated under Subpart KKKK. The enforcement of NSPS has been delegated to the SCAQMD, and the NSPS regulations are incorporated by reference into the SCAQMD's Regulation IX. In general, local emission limitation rules or BACT requirements in California are far more restrictive than the NSPS requirements. For example, the controlled

NO_X emission rate from the proposed project's CTGs of less than 0.08 pound (lb) of NO_X per megawatt (MW)-hour will be well below the Subpart KKKK requirement of 0.39 lb of NO_X per MW-hour. Similarly, the projected maximum SO_2 emissions from the proposed project CTGs will be about 0.03 lb of SO_2 per MW-hour, which is substantially less than the Subpart KKKK requirement of 0.58 lb of SO_2 per MW-hour.

NSPS fuel requirements for SO_2 will be satisfied by the use of natural gas, and emissions and fuel monitoring that will be performed to meet the requirements of BACT will comply with NSPS, acid rain, and other regulatory requirements.

6.2.6.1.7 Maximum Achievable Control Technology. The CAAA of 1990, under revisions to Section 112, require a proposed project to list and promulgate national emission standards for hazardous air pollutants (NESHAPS) in order to control, reduce, or otherwise limit the emissions of hazardous air pollutants (HAPs) from major categories and area sources. As these standards are promulgated, they are published in 40 CFR 63.

Stationary gas turbines are on the list of 174 categories of major and area sources that are subject to emission standards. The specific Maximum Achievable Control Technology (MACT) standard potentially applicable to new stationary gas turbines is 40 CFR 63 Subpart YYYY. However, since the proposed facility will not be a major source of HAPs, no additional controls under the NESHAPS are required.

6.2.6.1.8 Federally Mandated Operating Permits. Title V of the CAA requires USEPA to develop a federal operating permit program that is implemented under 40 CFR 70. This program is administered by SCAQMD under Regulation XXX, Rules 3000-3008. Permits must contain emission estimates based on potential-to-emit, identification of all emission sources and controls, a compliance plan, and a statement indicating each source's compliance status. The permits must also incorporate all applicable federal, state, or air quality control district orders, rules and regulations. Because the facility will be a new stationary source, the proposed project will apply for a new Title V permit concurrently with the Permit to Construct/Permit to Operate.

6.2.6.1.9 Consistency with Federal Requirements. The SCAQMD has authority to implement and enforce most applicable federal requirements, including the NSPS, NESHAPS, Title IV Acid Rain, and Title V Federal Operating Permit requirements. The CPP will apply for the Title V permit that will include Title IV Acid Rain provisions at the time of the application to SCAQMD for a Permit to Construct/Permit to Operate.

6.2.6.1.10 Risk Management Plan. Regulations (40 CFR 68) under the CAA are designed to prevent accidental releases of hazardous materials and to require development of plans for mitigation should such releases occur. The regulations require facilities that store more than a threshold quantity of a listed regulated substance to develop a Risk Management Plan

(RMP), including an offsite-consequence analysis for the worst-case accidental release of the hazardous substance, hazard assessments, and programs to prevent accidental releases of listed chemicals and to establish response procedures in the event of a release. Section 112(r)(5) of the CAA identifies the regulated substances, which are listed in 40 CFR 68.130. Aqueous ammonia, which will be used as a reagent to the proposed project SCR NO_X control system, is a listed substance and its Threshold Quantity for solutions of 20 percent and greater is 20,000 pounds of solution.

6.2.6.2 State

The CARB was created by the Mulford-Carrell Air Resources Act in 1968. The primary responsibilities of the CARB include: 1) to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; 2) to administer and coordinate the state's air pollution research program; 3) to adopt and update the state's ambient air quality standards; 4) to review the operations of the local air pollution control districts; and 5) to review and coordinate the state implementation plans for achieving federal ambient air quality standards.

6.2.6.2.1 State Implementation Plan. The federal CAA requires each state to prepare a SIP to demonstrate how it will attain the NAAQS within the federally imposed deadlines. In California, local districts adopt new rules to demonstrate how attainment of the NAAQS will be accomplished over time by reducing emissions. CARB reviews the SIP. The relevant SCAQMD Rules and Regulations that have been incorporated into the SIP are presented below under the local LORS.

6.2.6.2.2 California Clean Air Act. In 1989, California established state ambient air quality standards, including stringent enforcement of the NAAQS and additional standards for visibility-reducing particles, sulfates, and hydrogen sulfide. Local districts prepare air quality plans to demonstrate how the ambient air quality standards will be attained.

6.2.6.2.3 Toxic Air Contaminant Program. The Toxic Air Contaminant Identification and Control Act of 1983 created a state process to identify toxic air contaminants and to control their emissions. CARB identifies and prioritizes the pollutants to be considered for identification as toxic air contaminants. CARB assesses the potential for human exposure to a substance while the Office of Environmental Health Hazard Assessment (OEHHA) evaluates the corresponding health effects. These agencies prepare a risk assessment report to determine if the substance poses a significant health risk and should be identified as a toxic air contaminant. This program includes the 189 HAPs named by the CAAA. If necessary, CARB develops air toxics control measures to reduce emissions. Section 6.16, Public Health, presents a health risk assessment that has been conducted to evaluate the potential health risks from exposure to toxic air contaminants that will be emitted by the operational CPP project.

6.2.6.2.4 Air Toxics Hot Spots Program. As required by the California Health and Safety Code Section 44300 (originally Assembly Bill 2588 – Air Toxics "Hot Spots" Information and Assessment Act), this program was created in 1987 to develop a statewide inventory of air toxics emissions from stationary sources. Applicable facilities must prepare: 1) an emissions inventory plan identifying air toxics; 2) an emission inventory report quantifying air toxics emissions; and 3) a health risk assessment, if air toxics emissions are at sufficiently high levels. Facilities with air toxics emissions that are considered to pose a significant health risk must prepare and implement risk reduction plans. This requirement is applicable only after the start of operations. Section 6.16, Public Health, indicates that air toxics impacts from the proposed project would be well below a level of significance.

6.2.6.2.5 Permit to Construct and Permit to Operate. Under Regulation II, SCAQMD administers the air quality regulatory program for the construction, alteration, replacement, and operation of new power plants within its jurisdiction. Regulation II, Rules 201 and 203 incorporate other SCAQMD rules that pertain to sources that may emit air contaminants through the issuance of air permits (i.e., Permit to Construct [PTC] and Permit to Operate [PTO]). This permitting process allows the SCAQMD to adequately review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls are used. A PTC allows for the construction of the air pollution source and remains in effect until the PTO application is granted, denied, or canceled. For power plants under the siting jurisdiction of the CEC, the SCAQMD issues a Preliminary and a Final Determination of Compliance (DOC) to support the CEC Siting Process. The DOC is incorporated into the CEC license. After issuance of the CEC license, the SCAQMD will issue a PTC. Once the project commences operations and demonstrates compliance with the PTC, SCAQMD will issue a PTO. The PTO specifies conditions that the air pollution source must meet to comply with other air quality standards and will incorporate applicable PTC requirements.

6.2.6.2.6 Power Plant Siting Requirements. Under the Warren Alquist Act, the CEC has been charged with assessing the environmental impacts of each new power plant and considering the implementation of feasible mitigation measures to prevent potential significant impacts. The Secretary of Resources has certified that compliance with the CEC Power Plant Siting Process satisfies, or is the functional equivalent of, CEQA. CEQA Guidelines [Title 14, California Administrative Code, Section 15002(a)(3)] state that the basic purpose of CEQA is to "prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible."

The CEC siting regulations require that, unless certain conditions justifying an override are demonstrated, a new power plant can only be approved if the proposed project complies with all federal, state, and local air quality rules, regulations, standards, guidelines, and ordinances that govern the construction and operation of the proposed project. A project must

demonstrate that facility emissions will be appropriately controlled to mitigate significant impacts from the project and that it will not jeopardize attainment and maintenance of the state and federal AAQS. Cumulative impacts, impacts due to pollutant interaction, and impacts from noncriteria pollutants must also be considered.

6.2.6.2.7 CEC and CARB Memorandum of Understanding. This Memorandum of Understanding establishes requirements of the CEC to assure protection of environmental quality during AFC review.

6.2.6.2.8 Consistency with State Requirements. State law invests local air pollution control districts and air quality management districts with the responsibility for regulating emissions from stationary sources. As discussed previously in this section, the proposed project is under the local jurisdiction of the SCAQMD. Compliance with SCAQMD rules and regulations will ensure compliance with state air quality requirements.

6.2.6.3 Local

The SCAQMD is the local district with authority to implement and enforce air quality regulations. The SCAQMD prepares an Air Quality Plan to define its strategies for attaining the state and federal ambient air quality standards, including relevant control measures for implementing those strategies (Health and Safety Code Section 40914).

The SCAQMD Rules and Regulations are authorized by Health and Safety Code (H&SC) Section 4000 et seq., and Section 40200 et seq. This section presents the SCAQMD requirements that are applicable to the proposed project. The SCAQMD has the delegated authority for implementing local, state, and federal air quality regulations in Los Angeles, Orange, and the nondesert portions of Riverside and San Bernardino counties. The proposed project is subject to SCAQMD regulations that apply to new source review of emissions, prohibitory regulations, and requirements for toxic air pollutants. The following sections evaluate the proposed project's compliance with applicable SCAQMD requirements.

The proposed project is required to secure a preconstruction Determination of Compliance from the SCAQMD, and to demonstrate continued compliance with regulatory limits. The preconstruction review includes BACT and offsetting of emissions.

6.2.6.3.1 SCAQMD Rules and Regulations. The following paragraphs outline the SCAQMD rules and regulations that apply to the proposed project.

Regulation II – Permits. This regulation establishes the framework of the application for construction and operating permits for new or modified equipment that emits air pollutants.

Rule 201 – Permit to Construct. A project shall not construct or modify any nonexempt equipment that emits or controls air pollution without first obtaining a Permit to Construct.

The SCAQMD will issue a PTC after it issues its Preliminary and its Final Determination of Compliance and the CEC issues its license.

***Rule 202 – Temporary Permit to Operate*.** This rule allows for new equipment that was issued a PTC to be operated temporarily, upon notification of the Air Pollution Control Officer, until the final PTO is issued.

***Rule 203 – Permit to Operate*.** This rule prohibits operation of any equipment that emits or controls air pollutants without first obtaining a PTO, except as provided in Rule 202. The CPP will need to obtain all the required permits prior to operation of the proposed project.

***Rule 212 – Standards for Approving Permits*.** Rule 212 specifies the standard requirements for a PTC and a PTO, including public notification requirements for projects located within 1,000 feet from a school boundary, projects that pose a potential risk of nuisance, or facilities that pose a cancer risk of 10 in a million during a 70-year lifetime. Additionally, RECLAIM facilities that exceed the daily maximums specified in the rule must conduct public notification to the broadest possible scope of interested parties, including federal, state, and local interested agencies, for a 30-day public comment period. Public notification must include all applicable provisions of 40 CFR Part 51.161(b) and 40 CFR Part 124.10. The proposed project will not be located within 1,000 feet from the outer boundary of a school, but daily estimated emissions will exceed those stated in Rule 212(g). As required by Rule 212, the proposed project will not expose any individual to a cancer risk greater than or equal to 10 in a million (1×10^{-6}) during a lifetime (70 years) as presented in Section 6.16, Public Health, of this AFC. The CPP will be in compliance with Rule 212 by conducting public notification if triggered under the rule, including the 30-day notification and public comment requirements of 40 CFR Part 124.10 and 40 CFR Part 51.161(b).

***Rule 218 – Continuous Emission Monitoring*.** This rule describes the installation, quality control and assurance, and reporting requirements for continuous emission monitoring systems (CEMS) to measure in-stack pollutant concentrations or mass emissions of a source. This rule does not apply to the CEMS required under RECLAIM Regulation XX for NO_X monitoring.

***Regulation III – Fees*.**

***Rule 301 – Permit Fees*.** This rule identifies the fees that are applicable to permit modifications, new facilities, and permitted emissions. The CPP will submit the required fees with the application for Permit to Construct/Permit to Operate in compliance with this rule.

***Regulation IV – Prohibitions*.** This regulation restricts visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, startup/shutdown exemptions, and breakdown events.

***Rule 401 – Visible Emissions*.** Rule 401 prohibits the discharge of any air contaminant from a single source for more than three minutes in any one hour that produces visible emissions of specified opacity or shade (designated on the Ringlemann Chart). No visible emissions are expected with proper, normal operation of the proposed turbines and engines using natural gas and diesel fuels and the BACT equipment specified in this AFC.

***Rule 402 – Nuisance*.** Rule 402 implements H&SC 41700 to prohibit the discharge from any source of any air contaminant that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endangers such persons or public, or which may cause injury or damage to business or property. No such nuisance is expected with proper, normal operation of the proposed turbines and engines utilizing natural gas and diesel fuels with the control equipment specified in this AFC.

***Rule 403 – Fugitive Dust*.** Under this rule, The CPP must prevent, reduce, or mitigate fugitive dust emissions from the proposed project site and must use best available control measures to implement this rule. Mitigation may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, or using chemical stabilizers on roads or dirt areas, or ceasing all activities. A contingency plan may be required by the USEPA. The CPP will submit a fugitive dust plan to both the SCAQMD and the CEC. The CPP will also implement appropriate measures to control fugitive dust emissions during construction, including: 1) use of water or chemical dust suppressants on unpaved surfaces; 2) use of vacuum or water flushing on paved surfaces; 3) covering or maintaining freeboard on haul vehicles; 4) limiting traffic speed on unpaved areas to 15 mph; 5) installing erosion control measures; 6) replanting disturbed areas as soon as possible; 7) using gravel pads and wheel washers as needed; and 8) using wind breaks and dust suppression as needed to control wind erosion.

***Rule 407 – Liquid and Gaseous Air Contaminants*.** Rule 407 prohibits the discharge of CO and sulfur compounds into the atmosphere at specified concentrations (2,000 ppm of CO, and 500 ppm of SO_2) averaged over 15 minutes. The proposed project turbines will meet the CO emission limit of 2,000 ppm with (or without) the installation of control systems, as substantiated by the emission estimates presented in Table 6.2-15 and Appendix B-3. The sulfur emission requirement does not apply per Rule 407 (c)(2), since the fuel complies with the gaseous fuel sulfur content limits of Rule 431.1 (see below). The proposed project will be in compliance with this rule.

***Rule 408 – Circumvention*.** This rule prohibits the concealment of emissions released to the atmosphere, except in cases where the only violation involved is of Section 48700 of the H&SC or SCAQMD Rule 402. The CPP will not circumvent any SCAQMD rules or regulations.

Rule 431.1 – Sulfur Content of Gaseous Fuels. This rule specifies fuel sulfur content limits applicable to any person who burns gaseous fuels containing sulfur compounds. The rule's limit requirements are based on fuel type. The rule also provides test methods, monitoring, recordkeeping, and reporting requirements. Compliance with this rule is expected with usage of pipeline-grade natural gas. The total sulfur compounds are limited to a maximum of 0.20 grains/100 dscf (4 ppmv as hydrogen sulfide [H_2S]), which is less than the rule's 16 ppmv limit for natural gas (calculated as H_2S). The proposed project will therefore be in compliance with this rule.

Rule 475 – Electric Power Generating Equipment. This rule applies to power generating equipment greater than 10 MW installed after May 7, 1976. Requirements establish a limit for combustion contaminants (particulate matter) of 11 lbs/hr or 0.01 grains/scf. Compliance is achieved if either the mass limit or the concentration limit is met. Composite emissions calculations for all turbine operations (cold startup, hot startup, base load, and planned shutdown) indicate that the average rate of PM_{10} emissions per turbine will be less than 11 lb/hr. The proposed project will, therefore, be in compliance with this rule.

Regulation VII – Emergencies.

Rule 701 – Air Pollution Emergency Contingency Actions. This rule requires facilities employing 100 or more people or emitting 100 or more tons of air pollutants (NO_X, SO_X, or ROCs) per year to reduce those pollutants by at least 20 percent upon declaration or prediction of a Stage 2 or 3 episode. Upon declaration of a state of emergency by the Governor, a facility must comply with the Governor's requirements. A power plant may be exempt if it is determined to be an essential service responding to public emergency or utility outage. The CPP will employ less than 100 people and will emit less than 100 tons of any pollutant, and is thus exempt from this rule.

Regulation IX – Standards of Performance for New Stationary Sources. Stationary gas turbines at the CPP facility will be subject to the federal NSPS which are incorporated by reference in this rule. Specifically, 40 CFR Subpart KKKK is applicable. This subpart establishes limits for particulate matter, SO_2 and NO_2 emissions from the gas turbines, as well as corresponding monitoring and testing requirements. Emissions from the proposed project are expected to be well below these emissions limits with the proposed SCR controls to limit NO_X emissions and exclusive use of low-sulfur natural gas fuel to limit SO_2 emissions.

Regulation XI – Source Specific Standards.

Rule 1110.1 – Emissions from Stationary Internal Combustion Engines. This rule generally applies to engines larger than 50 brake-horsepower (bhp) and restricts NO_X and CO emissions from rich-burn or lean-burn engines. Emergency standby engines operating less

than 200 hours per year are exempt. The proposed project will include a 750 kW (1,141 bhp) diesel black start generator engine, but this engine is expected to operate substantially less than 200 hours per year and is thus not subject to this rule.

***Rule 1110.2 – Emissions from Gas and Liquid Fueled Engines*.** This rule establishes NO_X, VOC, and CO emission limits from stationary and portable engines over 50 bhp. Emergency standby engines operating less than 200 hours per year are exempt. The proposed project will operate a 750 kW (1,141 bhp) diesel black start generator engine, but this engine is expected to operate substantially less than 200 hours per year and is thus not subject to this rule.

***Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines*.** Rule 1134 applies to stationary gas turbines, which provide guidelines/requirements for controlling NO_X emissions. The proposed project will be exempt from this rule, since it will be covered by the RECLAIM program (Regulation XX).

***Rule 1135 – Emissions of Oxides of Nitrogen from Electric Power Generating Systems*.** Rule 1135 applies to electric power generating systems, which provide guidelines/ requirements for controlling NO_X emissions. The proposed project will be exempt from this rule, since it will be covered by the RECLAIM program (Regulation XX).

***Regulation XIII – New Source Review*.**

***Rule 1301 – General*.** This regulation requires preconstruction review for new, modified, or relocated facilities to ensure that the facility does not interfere with progress in attainment of the NAAQS, and that future economic growth in the SCAQMD is not unnecessarily restricted. This regulation limits the emissions of non-attainment contaminants and their precursors and ozone depleting compounds and ammonia, by requiring the use of BACT. The CPP intends to comply with all requirements of Regulation XIII.

Within the South Coast Air Basin, Orange County is a nonattainment region for ozone, PM_{10}, and $PM_{2.5}$. Precursors to nonattainment pollutants are also considered nonattainment for purposes of SCAQMD review. Therefore, SCAQMD considers the following pollutants to be nonattainment:

- Volatile organic gases (VOC) as a precursor to ozone and the organic fraction of suspended particulate matter
- NO_X as a precursor to ozone, NO_2 and the nitrate fraction of suspended particulate matter
- SO_X as a precursor to SO_2, SO_4, and the sulfate fraction of suspended particulate matter
- Inorganic gases such as ammonia (NH_3), hydrogen fluoride (HF), and hydrogen chloride (HCl), as precursors to particulate matter

***Rule 1303 – Requirements*.** There are four specific requirements that apply to an applicable permit unit:

(a) Installation of BACT (1303(a))

(b)(1) Modeling to substantiate that there will be no significant increase in the concentration of any regulated pollutant (1303(b)(1))

(b)(2) Obtaining emission offsets for any proposed increase in emissions above specified thresholds (1303(b)(2))

(c) Facility compliance verification (1303 (b)(3))

This regulation applies to all new or modified existing permit units that may cause the issuance of any nonattainment air contaminant (or precursor), halogenated hydrocarbon, or ammonia. The proposed project is expected to have emissions of NO_X, CO, SO_X, VOC, and PM_{10}. For RECLAIM facilities, this rule only applies to those nonattainment pollutants, or their precursors, not regulated under the RECLAIM program. The Regulation XIII requirements for CO, SO_X, VOC, PM_{10}, and NH_3 will apply.

Since CO and PM_{10} emissions are below BACT limits, the proposed project should not cause a significant increase in ambient air concentrations of CO, PM_{10}, or sulfates. However, a detailed air quality modeling analysis for CO, PM_{10}, $PM_{2.5}$, SO_2, and NO_2 has been conducted for the CPP project and is documented in Section 6.2.2.4. Modeling for VOC is not required by this rule. A Health Risk Assessment (HRA) for emissions of toxic contaminants is discussed in Section 6.16, Public Health and Safety, of this AFC.

Pursuant to Rule 1303 (b)(4) and Regulation II (Permits), the CPP shall certify that its facility complies with all applicable rules and regulations of SCAQMD. The new CTGs will be considered a Major Polluting Facility as defined by Rule 1302, since annual emissions of NO_X are projected to be over the 10-ton threshold. The CPP shall also certify that the other sources operated by the CPP are in compliance with applicable federal emissions standards. Statewide compliance certification will also be required.

***Rule 1304 – Exemptions*.** Under Rule 1304 (d)(1), emission offsets will be required if a new facility has the potential-to-emit (PTE) 4 tons per year or more of VOC, NO_X, SO_X, or PM_{10}, or 29 tons per year or more of CO, and must offset the total amount of emission increase pursuant to Rule 1303 (b)(2). Any new facility that has a PTE less than these amounts will be exempt from Rule 1303 (b)(2). The CPP will provide emissions offsets for NO_X and PM_{10}, since potential annual emissions of these pollutants will be above the four-ton exemption level (see Section 6.2.4)

***Rule 1306 – Emission Offsets*.** This rule is used as the basis for calculating daily emission increases and decreases used for determining project offset requirements and ERCs.

The CPP will comply with this rule by providing emissions offsets as described in Section 6.2.4.

***Rule 1309 – Emission Reduction Credits (ERCs) and Short Term Credits (STCs)*.** This rule addresses the application for eligibility, registration, use, and transfer of ERCs and STCs. These credits shall be used as offsets for emission increases at new or modified facilities that are subject to Rule 1303(b)(2). An application for ERCs for a new emission reduction that includes supporting data and documents must be submitted no more than 180 days after the emission reduction occurs.

ERC requirements include demonstration that all source reductions are real, quantifiable, permanent, federally enforceable, and not greater than the equipment would have achieved if operating with current BACT.

***Rule 1309.1 – Priority Reserve*.** Rule 1309.1 regulates access to the SCAQMD's Priority Reserve emission credit bank. An amendment to this rule was approved by the SCAQMD Board on August 3, 2007. The principal changes to the previous version of the rule concern the requirements for new electrical generating facilities (EGFs) within the SCAQMD. Specifically, access to Priority Reserve credits for SO_2, PM_{10}, and CO is allowed for thermal power plant facilities that generates 50 MW or greater of electricity for distribution in the state or municipality owned grid system (net generator); provided a complete AFC has been submitted to the CEC or SCAQMD permit to construct application during calendar years 2005 through 2008.

The CPP is an EGF within the SCAQMD under Rule 1309.1(4)(A) because it is a thermal power plant facility that will generate 50 MW or more of electricity. The CPP will generate approximately 200 MW for distribution in the state or municipality owned grid system, and will submit a complete AFC to the CEC.

Strict criteria regarding the allowable emissions and impacts on criteria pollutants and air toxics health risk were established for EGFs to be eligibility to Priority Reserve credits. The CPP is considered an In-SCAQMD EGF under 1309.1(5)(A)(iii) because the site is designated as an EJA and has a maximum capacity of 500 MW or less. Therefore, in order to draw credits from the Priority Reserve, the CPP must demonstrate the following:

a. The cancer risk from the combined new or modified electrical generating units is less than one in one million.

b. The non-cancer risk (acute and chronic) Hazard Index from the combined new or modified electrical generating units is less than 0.5.

c. The cancer burden from the combined new or modified electrical generating units is less than 0.1, based on a cancer of one in ten million.

d. The rate of PM_{10} emissions from each new or modified electrical generating unit at full load does not exceed 0.060 lb/MW-hr, corrected to 59ºF, 60 percent relative humidity, and 14.7 pounds per square inch, absolute (psia), except during startups and shutdowns as specified in the permit.

e. The rate of NO_X emissions from each new or modified electrical generating unit at full load does not exceed 0.080 lb/MW-hr, corrected to 59ºF, 60 percent relative humidity, and 14.7 psia, except during startups and shutdowns as specified in the permit.

f. The applicant must substantiate with modeling that the 24-hour impact of the total combined PM_{10} emissions from the new or modified electrical generating units will not exceed 5.0 $\mu g/m^3$.

g. The applicant must substantiate with modeling that the annual impact of the total combined PM_{10} emissions from the new or modified electrical generating units shall not exceed 0.75 $\mu g/m^3$.

h. For simple-cycle electric generating units, the unit shall operate a maximum of 4,000 hours per year or less.

An In-District EGF is not qualified to draw credits from the Priority Reserve unless it meets all applicable conditions included in 1309.1(5)(C). Should the CPP apply for Priority Reserve credits, mitigation fees for electrical generating facilities in Rule 1309.1(5)(g)(1)(D) apply, as well as all applicable 1309.1 technical requirements.

Table 6.2-33 shows that the CPP will meet the applicable eligibility requirements of Rule 1309.1 for access to Priority Reserve credits.

***Regulation XIV – Toxics*.**

***Rule 1401 – New Source Review of Carcinogenic Air Contaminants*.** The SCAQMD regulates air toxic contaminants from new, modified, or relocated permit units by specifying limits for the maximum individual cancer risk and excess cancer cases that may result from exposure to carcinogenic air contaminants from these sources.

Requirements for BACT for toxics, maximum individual cancer risk (MICR), and risk assessment guidelines for toxic pollutants are the primary topics addressed in 1401. The new CPP facility will be subject to Rule 1401 toxic pollutants. Emissions of organic hazardous air pollutants will be reduced by the CO oxidation catalyst. The CO oxidation catalyst is proposed as BACT for toxics for compliance with this rule. In addition, the proposed project would not cause an incremental cancer risk of 10 in 1 million, as documented in Section 6.16 of this AFC.

***Regulation XVII – Prevention of Significant Deterioration*.** This regulation establishes preconstruction requirements for stationary sources to ensure the air quality in attainment

TABLE 6.2-33
CPP COMPLIANCE WITH RULE 1309.1 ELIGIBILITY REQUIREMENTS FOR ACCESS TO PRIORITY RESERVE CREDITS

Parameter	Rule 1309.1 Requirements for Power Plant < 500 MW in an Environmental Justice Area	Compliance
Toxics Requirements		
Cancer Risk	<1 in a million	Maximum incremental cancer risk was modeled at 0.266 in a million (see Section 6.16 of this AFC).
Hazard Index	<0.5	Maximum Acute Hazard Index was modeled at 0.016. Maximum Chronic Hazard Index was modeled at 0.006. (see Section 6.16 of this AFC)
Cancer Burden	<0.1 calculated based on one in ten million risk level	Maximum predicted cancer burden value is zero, based on a one in ten million risk level (see Section 6.16 of this AFC).
Criteria Pollutant Requirements		
PM_{10} Emission Controls	Natural gas fuel only and ≤ 0.060 lb/MW-hr, corrected to 59ºF, 60 percent relative humidity, and 14.7 pounds per square inch, absolute (psia), except during startups and shutdowns as specified in the permit.	The vendor-guaranteed, full-load PM_{10} emission rate at ISO conditions is 2.93 lb/hour per turbine, and the corresponding generating rate is 49.169 MW. In the units specified in Rule 1309.1, these values correspond to an emission rate of 0.060 lb/MW-hour.
NO_X Emission Controls	≤ 080 lb/MW-hr, corrected to 59ºF, 60 percent relative humidity, and 14.7 psia, except during startups and shutdowns as specified in the permit.	The full-load hourly NO_X emission rate per turbine at ISO conditions is 3.98 lb/hour and the corresponding generating rate is 49.169 MW. In the units specified in Rule 1309.1, these values correspond to an emission rate of 0.080 lb/MW-hour.
Total Combined Gas Turbine PM_{10} Hourly Emissions	NSR BACT	PM_{10} emissions will be controlled through the exclusive use of clean-burning pipeline quality natural gas. This control technology has been widely and uniformly implemented for control of SO_2 and PM_{10} emissions from combustion turbines in California and throughout the United States, and is considered to be BACT for the CPP facility.
Total PM_{10} 24-hour Impact due to proposed generating units	5 µg/m3	The maximum predicted impact of the entire facility, including four simple cycle turbines, black start engine and cooling tower, on 24-hour PM_{10} concentrations is 1.9 µg/m3. (see Table 6.2-25).

TABLE 6.2-33(CONTINUED)
CPP COMPLIANCE WITH RULE 1309.1 ELIGIBILITY REQUIREMENTS FOR ACCESS TO PRIORITY RESERVE CREDITS

Parameter	Rule 1309.1 Requirements for Power Plant < 500 MW in an Environmental Justice Area	Compliance
Total PM_{10} Annual Impact due to proposed generating units	0.75 µg/m3	The maximum predicted impact of the entire facility, including four simple cycle turbines, black start engine and cooling tower, on annual PM_{10} concentrations is 0.035 µg/m3 (see Table 6.2-25).
Other Requirements		
Limit on Annual Hours of Operation	4,000 hours per year per unit	Four CPP generating units will operate a combined total of 4,006 turbine hours.
Timing of PTC Application submittal (Rule 1309.1(d)(12))	Submit PTC Application in calendar years 2005 – 2008	This AFC and CPP PTC application are being submitted to AQMD in December 2007.
EGF Located in a EJA (Rule 1309.1(d)(13))	Governing Board must first approve a plan to invest mitigation fees	CPP will comply with required mitigation measures.

areas does not significantly deteriorate while maintaining a margin for future growth. It establishes maximum allowable increases over ambient baseline concentrations for each pollutant.

***Rule 1703 – PSD Analysis*.** The SCAQMD Rule 1703(a)(2) requires that each permit unit is constructed using BACT for each criteria air contaminant for which there is federally significant net emission increase. Since the proposed project will not trigger the federal Major Source emission threshold of 250 tons per year for any pollutant, this project will not be subject to the PSD rule.

***Regulation XX – Regional Clean Air Incentives Market*.** RECLAIM is a program designed to distribute emission allocations (or credits) for two primary non-attainment pollutants: NO_X and SO_X. A facility under the program may emit NO_X and/or SO_2 only in accordance with the amount of RECLAIM credits in the facility's possession. Facilities in the South Coast Air Basin that emit more than 4 tons per year of NO_X or SO_2 are automatically included in the program. Regulation XX sets specific NO_X and/or SO_2 requirements for RECLAIM facilities and exempts covered facilities from other NO_X and/or SO_2 requirements in a number of command and control rules according to Tables 1 and 2 in Rule 2001. Since the CPP will have NO_X emissions in excess of 4 tons per year, it will automatically be included in the RECLAIM program, the CPP will comply with the CEMS, record-keeping, and reporting requirements per Rule 2012.

***Rule 2005 – New Source Review for RECLAIM*.** Similar to Regulation XIII, Rule 2005 defines the pre-construction review requirements for new RECLAIM facilities and modifications to existing RECLAIM facilities. The requirements of Rule 2005 are virtually identical to Rule 1303, except for different offset NO_X requirements. NO_X emission increases must be below the facility's current RECLAIM Trading Credit (RTC) allocation or additional RTCs must be provided. RECLAIM facilities have no community bank for NO_X. Compliance certification requirements are identical to Rule 1303. The CPP will need to obtain a RECLAIM permit and comply with BACT, modeling, and emissions offsetting requirements. As presented in this AFC, the CPP has conducted dispersion modeling of the potential air impacts to substantiate that operational emissions of NO_X will not significantly affect air quality. The CPP will apply BACT to the turbines and SCR to control NO_X, and will offset the NO_X emissions by RECLAIM credits.

***Regulation XXX – Federal Operating Permits (Title V, Part 70)*.** SCAQMD administers the Federal Operating Permits program by means of Regulation XXX. The proposed project will be a Title V source. Regulation XXX defines the permit application and issuance, and the compliance requirements of the program. The proposed project will require a new Title V permit, and USEPA Region IX review is required. Regulation XXX integrates the Title V permit with the RECLAIM permit so that the proposed project can't proceed without the other. The CPP will apply for Title V permit.

***Regulation XXXI – Acid Rain Permit*.** Title IV of the federal CAAA establishes acid rain permitting for qualifying facilities. Regulation XXXI integrates the Title IV program with the RECLAIM program. The regulation requires a facility to obtain emission allowances for SO_X emissions, and requires monitoring of SO_X NO_X, and CO_2. The CPP will submit the Title IV application to SCAQMD with the PTC/PTO application.

Table 6.2-34 presents the applicable federal, state, local regulations that the proposed project must adequately address as part of the permitting process.

6.2.7 Involved Agencies and Agency Contacts

Agency contacts regarding the air quality assessment of the proposed project are listed in Table 6.2-35.

6.2.8 Permits Required and Permitting Schedule

Permits required and permitting schedule are shown in Table 6.2-36.

Under Regulation II, SCAQMD regulates the construction, alteration, replacement, and operation of new power plants. The proposed project is required to obtain a pre-construction DOC from the SCAQMD. Regulation II, Rules 201 and 203 incorporates other SCAQMD rules pertaining to sources that may emit air contaminants through the issuance of air permits

TABLE 6.2-34
APPLICABLE LORS

Applicable LORS	Description	Regulating Agency	Section Reference
Federal			
Clean Air Act 160-169A and implementing regulations, Title 42 United States Code (USC) 7470-7491 (42 USC 7470-7491; Title 40 Code of Federal Regulations (CFR) Parts 51 and 52 (40 CFR Parts 51 and 52) Prevention of Significant Deterioration Program)	Requires PSD review and facility permitting for construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than NAAQS.	SCAQMD, with USEPA Region IX oversight	6.2
CAA 171-193, 42 USC 7501 et seq. (New Source Review)	Requires NSR facility permitting for construction or modification of stationary sources. NSR applies to pollutants for which ambient concentrations are higher than NAAQS.	SCAQMD, with USEPA Region IX oversight	6.2
CAA 401 (Title IV), 42 USC 7651 (Acid Rain Program)	Requires reductions in NO_X and SO_2 emissions.	SCAQMD, with USEPA Region IX oversight	6.2.2
CAA 501 (Title V), 42 USC 7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	SCAQMD, with USEPA Region IX oversight	6.2.5
CAA 111, 42 USC 7411, 40 CFR Part 60 (New Source Performance Standards, or NSPS)	Establishes national standards of performance for new stationary sources.	SCAQMD, with USEPA Region IX oversight	6.2
State			
H&SC 44300-44384; Title 17 of the California Code of Regulations (17 CCR) 93300-93347 (Toxic “Hot Spots” Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; health risk assessments.	SCAQMD, with CARB oversight	6.16
H&SC 41700 (Nuisance)	Provides that no person shall discharge from any source quantities of air contaminants or material which cause injury, detriment, nuisance, or annoyance to considerable number of persons or to the public which endanger the comfort, repose, health or safety or which can cause injury or damage to business or property.	SCAQMD, with CARB oversight	6.2, 6.16

TABLE 6.2-34 (CONTINUED)
APPLICABLE LORS

Applicable LORS	Description	Regulating Agency	Section Reference
California Public Resources Code 25523(a); 20 CCR 1752, 2300-2309 and Div. 2, Chap. 5, Art. 1, Appendix B, Park (k) (CEC and CARB Memorandum of Understanding)	Requires that CEC's decision on the AFC include requirements to assure protection of environmental quality; AFC is required to address air quality protection.	CEC	6.2.2, 6.2.3
Local			
SCAQMD Rule 201 Permit to Construct	Requires a Permit to Construct before construction of an emission source occurs.	SCAQMD, with CARB and USEPA Region IX oversight	6.2.6
SCAQMD Rule 202 Temporary Permit to Operate	Requires notification to Air Pollution Control officer if new equipment is to be operated temporarily before the final PTO is issued.	SCAQMD	6.2.6
SCAQMD Rule 203 Permit to Operate	Prohibits operation of any equipment that emits or controls air pollutants without first obtaining a permit to operate, except as provided in Rule 202.	SCAQMD	6.2.6
SCAQMD Rule 212 Standards for Approving Permits	Specifies the standard requirements for a Permit to Construct and Permit to Operate, including public notification requirements.	SCAQMD	6.2.6
SCAQMD Rule 218 Continuous Emission Monitoring	Describes the installation, quality control and assurance, and reporting requirements for CEMS to determine the concentration of mass emissions of a source.	SCAQMD	6.2.6
SCAQMD Rule 301 Permit Fees	Identifies fees that are applicable to permit modifications, new facilities, and permitted emissions.	SCAQMD	6.2.6
SCAQMD Rule 401 Visible Emissions	Prohibits the discharge of any air contaminant from a single source for more than 3 minutes in any one hour that produces visible emissions of specified opacity or shade designed on the Ringlemann Chart.	SCAQMD	6.2.6

TABLE 6.2-34 (CONTINUED)
APPLICABLE LORS

Applicable LORS	Description	Regulating Agency	Section Reference
SCAQMD Rule 402 Nuisance (H&SC 41700)	Prohibits the discharge from any source of any air contaminant that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endangers such persons or public or which may cause injury or damage to business or property.	SCAQMD	6.2, 7.6
SCAQMD Rule 403 Fugitive Dust	Visible fugitive dust is restricted to the proposed project property line. PM_{10} emissions are limited to less than 50 µg/m^3. Bulk materials may not be tracked onto public roads. Best available control measures must be employed for mitigation. Contingency plan may be required by the USEPA.	SCAQMD	6.2.2, 6.2.3
SCAQMD Rule 407 Liquid and Gaseous Air Contaminants	Prohibits the discharge of CO and sulfur compounds into the atmosphere at specified concentrations.	SCAQMD	6.2.2, 6.2.3
SCAQMD Rule 408 Circumvention	Allows the concealment of emissions released to the atmosphere in cases where the only violation is Health and Safety Code 48700 or Rule 402.	SCAQMD	6.2.6
SCAQMD Rule 431.1 Sulfur Content of Gaseous Fuels	Specifies fuel sulfur content limits; test methods, monitoring, recordkeeping and reporting.	SCAQMD	3.0
SCAQMD Rule 431.2 Sulfur Content of Liquid Fuels	Establishes sulfur content of 0.05% by weight for diesel fuel.	SCAQMD	3.0
SCAQMD Rule 475 Electric Power Generating Equipment	Establishes limit on particulate matter of 11 lb/hr or 0.01 grains/scf.	SCAQMD	6.2.2, 6.2.3
SCAQMD Rule 701 Air Pollution Emergency Contingency Actions	Employers of 100 people or more, or emitting 100 tons or more of air pollutants must reduce pollutants by 20% upon Stage 2 or 3 episode, or a state of emergency issued by Governor.	SCAQMD	6.2.6
SCAQMD Regulation IX Standards of Performance for New Stationary Sources (NSPS)	Establishes emission limits, monitoring and reporting requirements for electric utility steam generating units under NSPS Subpart Da; and for stationary gas turbines under Subpart KKKK.	SCAQMD, with USEPA Region IX oversight	6.2

TABLE 6.2-34 (CONTINUED)
APPLICABLE LORS

Applicable LORS	Description	Regulating Agency	Section Reference
SCAQMD Rule 1110.1 Emissions from Stationary Internal Combustion Engines	Establishes NO_X and CO limits from rich-burn or lean-burn engines. Engines operating less than 200 hours per year are exempt.	SCAQMD	6.2.2, 6.2.3
SCAQMD Rule 1110.2 Emissions from Gas and Liquid Fueled Engines.	Establishes NO_X, VOC and CO emission limits from stationary and portable engines over 50 bhp. Engines operating less than 200 hours per year are exempt.	SCAQMD	6.2.2, 6.2.3
SCAQMD Rule 1135 Emissions of Oxides of Nitrogen from Electric Power Generating Systems	Establishes guidelines for controlling NO_X emissions (SCAQMD Regulation XX RECLAIM facilities are exempt).	SCAQMD	6.2.2
SCAQMD Regulation XIII – New Source Review	Requires pre-construction review for new, modified or relocated facilities to ensure that the facility does not interfere with progress in attainment of the NAAQS. Limits emissions of non-attainment contaminants and their precursors, ozone-depleting compounds and ammonia; requires BACT, modeling, emission offsetting, and compliance verification. Gives application methods and rules for ERCs, STCs, and Priority Reserve credits.	SCAQMD, with CARB and USEPA Region IX oversight	6.2
SCAQMD Regulation XIV Rule 1401 – New Source Review of Toxic Air Contaminants	Specifies risk limits which may result from exposures to carcinogenic air contaminants; requires BACT for toxics at certain level.	SCAQMD, with CARB and USEPA Region IX oversight	6.2
SCAQMD Regulation XVII, Rule 1703 PSD Analysis	Establishes preconstruction requirements for sources to ensure air quality in attainment areas does not significantly deteriorate while maintaining a margin for future growth; requires BACT for each criteria pollutant for which there is a federally significant net emission increase.	SCAQMD, with USEPA Region IX oversight	6.2
SCAQMD Regulation XX – Regional Clean Air Incentives Market (RECLAIM)	Distributes emission allocations for NO_X and SO_X for facilities emitting over 4 tons per year. Sets specific requirements for RECLAIM facilities.	SCAQMD	6.2.2, 6.2.3, 6.2.6

TABLE 6.2-34 (CONTINUED)
APPLICABLE LORS

Applicable LORS	Description	Regulating Agency	Section Reference
SCAQMD Rule 2005 New Source Review for RECLAIM	Defines pre-construction review for RECLAIM facilities, including offsetting using RECLAIM Trading Credits (RTC).	SCAQMD, with USEPA Region IX oversight	6.2
SCAQMD Regulation XXX – Federal Operating Permits (Title V)	Administers the 40 CFR Part 70 Federal Permitting Program; defines permit application and issuance, and the compliance requirements of the program. Integrates with RECLAIM permit.	SCAQMD, with CARB and USEPA Region IX oversight	6.2.6
SCAQMD Regulation XXXI – Acid Rain Permit	Establishes acid rain permitting required by Title IV of CAA. Integrates with RECLAIM permit.	SCAQMD, with CARB and USEPA Region IX oversight	6.2.6

TABLE 6.2-35
AGENCY CONTACTS

Issue	Agency/Address	Contact/Title	Telephone
	Air Quality – California Energy Commission 1519 Ninth Street Sacramento, CA 95814	Joe Loyer, Associate Mechanical Engineer	(916) 654-4287
	Air Quality – South Coast Air Pollution Control District 21865 Copley Dr, Diamond Bar, CA 91765	Tom Chico, Senior Modeler	(909) 396-3149
	Air Quality – California Air Resources Board P.O. Box 2815 Sacramento, CA 95812	Michael Tollstrup, Chief, Project Assessment Branch Stationary Source Division	(916) 322-6026

TABLE 6.2-36
PERMITS REQUIRED AND PERMITTING SCHEDULE

Responsible Agency	Permit	Permitting Schedule
South Coast Air Quality Management District (SCAQMD)	Permit to Construct/ Permit to Operate—PTC replaced by DOC process	Application to be filed concurrent with AFC filing. 180-day application review period will be requested.

(i.e., PTC and PTO). This permitting process allows the SCAQMD to adequately review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls are used. A PTC allows for the construction of the air pollution source and remains in effect until the PTO is granted, denied, or canceled. For power plants under the siting jurisdiction of the CEC, the SCAQMD issues a Preliminary and a Final DOC to support the CEC Siting Process. The DOC is incorporated into the CEC license. After issuance of the CEC License, the SCAQMD will issue a PTC. Once the project commences operations and demonstrates compliance with the PTC, SCAQMD will issue a PTO. The PTO specifies conditions that the air pollution source must meet to comply with other air quality standards and will incorporate applicable PTC requirements. The Final DOC should be issued within 6 months after receipt of complete applications.

6.2.9 References

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