4.3 AIR QUALITY

4.3.1 SETTING

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality. This setting section provides an overview of the regulatory context of air quality management in California followed by project-area-specific information related to climate and topography; plans, policies, and regulations; and existing air quality conditions.

REGULATORY CONTEXT

Criteria Air Pollutants

Regulation of air pollution is achieved through both national and state ambient air quality Standards and emissions limits for individual sources of air pollutants. As required by the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (EPA) has identified criteria pollutants and established National Ambient Air Quality Standards (national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide (SO_2), particulate matter (PM), and lead. These pollutants are called "criteria" air pollutants because they are the most common pollutants found in the atmosphere and standards have been established for each of them to meet specific public health and welfare criteria. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards or State standards). Because of the unique meteorological conditions in California, there is considerable diversity between federal and state air quality standards currently in effect in California. **Table 4.3-1** presents both sets of ambient air quality standards (i.e., national and state) and provides a brief discussion of the related health effects and principal sources for each pollutant.

Area Designations

Both the California and federal governments use monitoring data to designate areas according to their attainment status for most of the pollutants with ambient air quality standards. The purpose of the designations is to identify those areas with air quality problems and thereby initiate planning efforts to make the air more healthful. There are three basic designation categories: nonattainment, attainment, and unclassified. In addition, the California (State) designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are making progress and nearing attainment.

TABLE 4.3-1
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm /a/ ---	0.12 ppm 0.08 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.25 ppm ---	--- 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual Avg.	0.25 ppm --- 0.04 ppm ---	--- 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Suspended Particulate Matter (PM-10)	24 hours Annual Avg.	50 $\mu g/m^3$ /b/ 30 $\mu g/m^3$ /c/	150 $\mu g/m^3$ 50 $\mu g/m^3$	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
Fine Particulate Matter (PM-2.5)	24 hours Annual Avg.	25 $\mu g/m^3$ /d/ 12 $\mu g/m^3$ /d/	65 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
Sulfates	24 hours	25 $\mu g/m^3$	---	Decrease in ventilatory function; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Similar to Sulfur Dioxide sulfates can result from fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Lead	Monthly Quarterly	1.5 $\mu g/m^3$ ---	--- 1.5 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

NOTES: /a/ ppm = parts per million.
/b/ $\mu g/m^3$ = micrograms per cubic meter.
/c/ Geometric mean.
/d/ As of April 2002, the California Air Resource Board is proposing state PM-2.5 standards. The table shows these proposed standards for information purposes only as these are not yet approved or promulgated.

SOURCES: South Coast Air Quality Management District, *1997 Air Quality Management Plan*, November 1996; http://www.aqmd.gov/aqmp/97aqmp/

A nonattainment designation indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem. The federal nonattainment categories range from "marginal" to "extreme" while the State categories are "moderate, serious, severe, and extreme." In contrast to nonattainment, an attainment designation indicates that the air quality does not violate the established standard. In most cases, areas designated as attainment must develop and implement maintenance plans designed to assure continued compliance with the standard. Finally, an unclassified designation indicates that there is insufficient data for determining attainment or nonattainment.

Under amendments to the FCAA, the EPA has classified air basins or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. In 1988, the State Legislature passed the California Clean Air Act (CCAA), which is patterned after the FCAA to the extent that areas are required to be designated as "attainment" or "nonattainment" for the state standards. Thus, areas in California have two sets of attainment / nonattainment designations: one set with respect to the national standards and one set with respect to the state standards.

Air Quality Plans

The FCAA also requires nonattainment areas to prepare air quality plans that include strategies for achieving attainment. Plans are also required under federal law for areas designated as "maintenance" for national standards. State level air quality agencies such as the California Air Resources Board (CARB) compile the State Implementation Plans (SIPs) from air quality plans of all nonattainment areas within the state to demonstrate how states will attain and maintain national air quality standards. Therefore, air quality plans developed by the regional and county air districts will form parts of the SIP. The CCAA also requires plans for nonattainment areas with respect to the state standards (with the exception of areas designated as nonattainment for the state PM-10 standard). Thus, just as areas in California have two sets of designations, many also have two sets of air quality plans: one to meet federal requirements relative to the national standards and one to meet state requirements relative to the state standards.

Toxic Air Contaminants

Toxic air contaminants (TACs) are less pervasive in the urban atmosphere than the criteria air pollutants, but are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

Two principal laws provide the foundation for state regulation of TACs from stationary sources. In 1983, the State Legislature adopted Assembly Bill 1807, which established a process for identifying TACs and providing the authority for developing retrofit air toxics control measures

on a statewide basis. The current list of TACs includes approximately 200 compounds, including all of the toxics identified under federal law plus additional compounds, such as particulate emissions from diesel-fueled engines, which was added in 1998. Air toxics from stationary sources in California are also regulated under Assembly Bill 2588 (AB 2588), the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the regional air quality management district or county air pollution control district. High priority facilities are required to perform a health risk assessment, and if specific thresholds are violated, they are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk level, emitting facilities can be required to implement varying levels of risk reduction measures.

The regulatory approach differs between stationary sources and mobile sources of TACs. The approach to regulation of TACs from mobile sources has been through establishment (by the EPA and CARB) of emissions standards for motor vehicles (imposed on vehicle manufacturers) and through specifications for gasoline and diesel fuel sold in California (imposed on fuel refineries and retailers), rather than through air quality permits or regulations on how motor vehicles are used by the general public.

REGULATORY AGENCIES

The EPA is responsible for implementing the myriad of programs established under the FCAA, such as establishing and reviewing the national ambient air quality standards and judging the adequacy of SIPs, but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. CARB, California's state air quality management agency, is responsible for establishing and reviewing the state ambient air quality standards, compiling the SIP and securing approval of that plan from the EPA, and identifying TACs. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of local air districts, which are organized at the county or regional level. The county or regional air districts are primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within their geographic area and for preparing the air quality plans that are required under the FCAA and CCAA. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

SOURCES OF EMISSIONS IN CALIFORNIA

California is a diverse State with many sources of air pollution. To estimate the sources and quantities of pollution, CARB, in cooperation with local air pollution control districts and industry, maintains an emission inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources. Stationary source emissions are based on estimates made by facility operators and local air pollution control districts. Emissions from specific facilities can be identified by

name and location. Area-wide emissions are estimated by CARB and district staffs. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. Mobile source emissions are estimated by CARB staff with assistance from districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. Natural sources are also estimated by CARB staff and the air districts. These sources include geogenic hydro-carbons, natural wind-blown dust, and wildfires. For the inventoried emission sources, CARB compiles emission estimates for both the criteria pollutants and TACs.

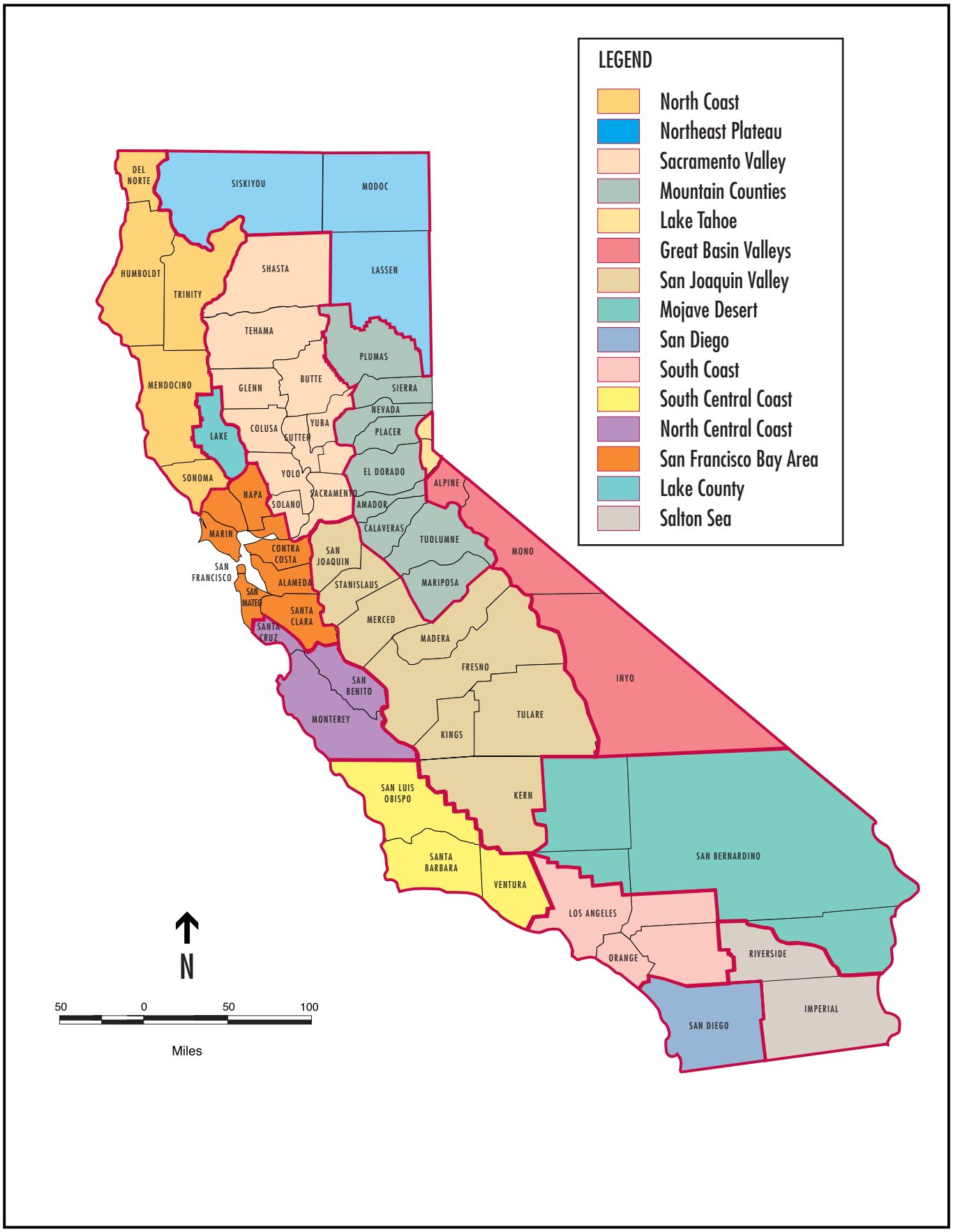
AIR BASINS OF CALIFORNIA

California contains a wide variety of climates, physical features, and emission sources. This variety makes the task of improving air quality complex, because what works in one area may not be effective in another area. To better manage the air resources of the State and common air quality problems on a regional basis, California is divided into 15 air basins. CARB established the initial air basin boundaries in 1968. An air basin generally has similar meteorological and geographic conditions throughout. Areas within each air basin are considered to share the same air masses and are therefore expected to have similar ambient air quality. To the extent possible, the air basin boundaries follow along political boundary lines and are defined to include both the source area and the receptor area. However, air often moves freely from basin to basin. As a result, pollutants such as ozone and PM-10 can be transported across air basin boundaries, and inter-basin transport is a reality that must be dealt with in air quality programs. The air basin boundaries have been changed several times over the years, to provide for better air quality management.

Figure 4.3-1 below shows the air basin boundaries and the location of the counties that lie within each air basin. **Figure 4.3-2** shows the boundaries of the regional and county air quality management districts and air pollution control districts that manage the air resources within different air basins. Note that the jurisdictional boundaries of these air districts do not always correspond with the boundaries of the air basins.

LOCATION OF THE PROPOSED PROJECT

The location of the proposed project areas is located within seven air basins. In addition to the state and federal air quality laws, the proposed project would be subject to the rules and regulations of seven regional air quality management districts and would be required to be consistent with their regional air quality plans. Air basins and local air districts that are affected by the proposed project are listed in **Table 4.3-2**.



Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

SOURCE: MIG, Inc. and Environmental Science Associates, 2000

Figure 4.3-1
Counties and Air Basins of California

Draft Program Environmental Impact Report for Sempra Communications' Application for a CPCN/A.00-02-020 ■

SOURCE: Environmental Science Associates, 2002

Figure 4.3-2
Local Air Quality Management Agencies of California

TABLE 4.3-2
CALIFORNIA AIR BASINS AND LOCAL AIR DISTRICTS AFFECTED BY THE PROPOSED PROJECT

Air Basin	Local Air Districts
Sacramento Valley Air Basin	Sacramento Metropolitan Air Quality Management District
San Francisco Bay Area Air Basin	Bay Area Air Quality Management District
North Central Coast Air Basin	Monterrey Bay Unified Air Pollution Control District
San Joaquin Valley Air Basin	San Joaquin Valley Unified Air Pollution Control District
South Coast Air Basin	South Coast Air Quality Management District
San Diego Air Basin	San Diego County Air Pollution Control District
Salton Sea Air Basin	Imperial County Air Pollution Control District.

SOURCE: Environmental Science Associates, 2002

The following paragraphs provide a brief discussion of the climate and topography, attainment status, regulatory agencies, plans, policies, rules and regulations and existing air quality conditions applicable to the project areas located in the seven air basins affected by the project. The attainment status of the project areas in the seven air basins, for the pollutants of concern in California is also summarized in **Table 4.3-3**.

Sacramento Valley Air Basin

The Sacramento Valley Air Basin (SVAB) includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western portion of Placer County, and the eastern portion of Solano County. The proposed project would be located in areas only within Sacramento County (see Figure 3-9 in Chapter 3, Project Description). Sacramento County forms part of the area known as the Broader Sacramento Area.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the agency with air pollution control authority over all of Sacramento County.

Climate and Topography

Because of its inland location, the climate of Sacramento is generally more extreme than coastal areas. Sacramento is characterized by wet and cool winters from November through March and warm to hot, dry weather from May through September. The topographic features giving shape to Sacramento County are the Coast Ranges to the west, the Sierra Nevada to the east, and the Cascade Range to the north. These mountain ranges channel winds through Sacramento but also inhibit dispersion of pollutant emissions, particularly in combination with persistent regional subsidence inversions (i.e., warmer air overlying cooler air), leading to conditions under which pollutant concentrations can accumulate.

TABLE 4.3-3
ATTAINMENT STATUS OF THE PROPOSED PROJECT AREA FOR THE STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Attainment Status[a]													
	State Standards[b]							National Standards[c]						
Pollutant	Bay Area	SCAB	SVAB	SJVAB	SDAB	NCCAB	SSAB	Bay Area	SCAB	SVAB	SJVAB	SDAB	NCCAB	SSAB
Ozone	N	N	N	N	N	N	N	N	N	N	N	N	A	N
Carbon Monoxide	A	N	A	A	A	U	U	A	N	A	A	A	A	A
Hydrogen Sulfide	U	U	U	U	U	U	U	-	-	-	-	-	-	-
Nitrogen Dioxide	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sulfates	A	A	A	A	A	A	A	-	-	-	-	-	-	-
Sulfur Dioxide	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Suspended Particulate Matter (PM-10)	N	N	N	N	N	N	N	A	N	A	N	A	A	N
Lead	A	A	A	A	A	A	A	A	A	A	A	A	A	A

a N = nonattainment, A = attainment, U = unclassified, - = no standard.
b California Standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and PM-10 are values that are not to be exceeded.
c National standards other than for ozone and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year.

Bay Area = San Francisco Bay Area Air Basin
SCAB = South Coast Air Basin
SVAB = Sacramento Valley Air Basin
SJVAB = San Joaquin Valley Air Basin
SDAB = San Diego Air Basin
NCCAB = North Central Coast Air Basin
SSAB = Salton Sea Air Basin

NOTE: In 1997, EPA established an 8-hour standard for ozone, and annual and 24-hour standards for very fine particulate matter (PM-2.5). As of May 2002, there is insufficient monitoring data to determine the attainment status for PM-2.5.

SOURCE: California Air Resources Board, 2001 State and National Area Designation Maps of California; http://www.arb.ca.gov/desig/adm/adm.htm.

Attainment Status

Sacramento County is currently designated as nonattainment for state ozone and PM-10 standards (CARB, 2000). In addition, Sacramento County is located within a subregion of the Sacramento Valley that is designated nonattainment for the national one-hour ozone standard; this subregion includes all or portions of Sacramento, Yolo, Solano, El Dorado, Placer, and Sutter counties. This subregion is further classified as a "severe" nonattainment area with respect to the national one-hour ozone standard.

Sacramento Valley is attainment or "unclassified" with respect to the other pollutant standards, except for the national PM-10 standard. Sacramento County is officially designated as nonattainment for the national PM-10 standard, but, based on questions concerning the validity of the data supporting the nonattainment designation; SMAQMD has requested U.S. EPA to redesignate the county as attainment for the national PM-10 standard (SMAQMD, 2001). This request is currently under review by the EPA. With respect to carbon monoxide, the urbanized portions of Sacramento, Placer, and Yolo counties are designated as a "maintenance" area for the national standard, which indicates that the area had once been designated nonattainment for that pollutant, but is now designated as attainment in light of improved conditions.

Plans and Policies

The 1994 ozone SIP, the *Sacramento Area Regional Ozone Attainment Plan*, is the current federal ozone plan for Sacramento County (SMAQMD, 1994). The plan was developed on a regional basis with the participation of the five air districts in the region, CARB, and the Sacramento Area Council of Governments. The EPA defines the Sacramento ozone nonattainment area to include Sacramento County, Yolo County, Solano County (a portion), Placer and El Dorado Counties (except mountain portions), and part of Sutter County adjacent to Sacramento County. The 1994 ozone SIP relies heavily on local air-district-administered, stationary-source control programs and on statewide mobile-source control programs. With respect to the national carbon monoxide standard, this portion of the project area is subject to a "maintenance" plan, which demonstrates how the area will continue to maintain concentrations below the standard now that the county's designation is "attainment." In contrast to the ozone plan, the *Carbon Monoxide Maintenance Plan* relies almost exclusively on statewide mobile-source control programs.

In compliance with the requirements of the CCAA to assess the progress towards reaching attainment, the 1991 Air Quality Attainment Plan (State Plan) was adopted by the SMAQMD. The CCAA requirement for the first triennial progress report and Plan revision of the State Plan was fulfilled with the preparation and adoption of the 1994 Sacramento Area Regional Ozone Attainment Plan (Federal Plan). This document was prepared to fulfill the requirements of the FCAA and construed by the ARB to also fulfill the 1994 requirements of the CCAA.

Rules and Regulations

The SMAQMD is the agency primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within Sacramento County. SMAQMD is also responsible for

preparing the air quality plans (or portions thereof) for its jurisdiction. SMAQMD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. SMAQMD exercises permit authority through its *Rules and Regulations*. Emission sources associated with the project such as mobile equipment and trucks related to construction are generally not subject to the permitting requirements. Under SMAQMD's *Rules and Regulations*, new stationary sources, including internal combustion engines with a manufacturer's maximum continuous rating of greater than 50 brake horsepower must secure an authority to construct (Rule 301) and a permit to operate (Rule 302). This rule would apply to any emergency generators that would be installed at the regenerator huts/POP sites within Sacramento County. In addition, within Sacramento County, SMAQMD Rule 403 (Fugitive Dust) applies to various dust-generating activities, including construction operations.

Existing Air Quality Conditions

The SMAQMD operates a monitoring network to monitor ambient pollutant concentrations within its jurisdiction. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-4** is a summary of regional monitoring data collected over the past four years for those pollutants for which the SVAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-4**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 50 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 7 and 41 days per year, respectively, over the same period. High ozone concentrations in Sacramento Valley reflect basin-wide emissions sources of ozone precursors (i.e., reactive organic gases and nitrogen oxides), as well as pollutant transport from the San Francisco Bay Area and San Joaquin Valley. Emissions generated within Sacramento Valley, in turn, can significantly affect ozone concentrations in the adjacent Mountain Counties Air Basin.

These data show that for the Air Basin there are no exceedances for carbon monoxide, sulfur dioxide and nitrogen dioxide over the past four years.

With respect to PM-10, the regional monitoring network records exceedances of the state 24-hour standard at one or more of the monitoring stations on a regular basis. Based on available data, PM-10 exceedances are recorded at one or more of the stations in the basin.

San Francisco Bay Area Air Basin

The San Francisco Bay Area Air Basin (Bay Area) encompasses a nine county region that includes all of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Marin and Napa counties and the southern portion of Sonoma and southwestern half of Solano County. The project encompasses six of the nine Bay Area counties, namely Marin, San Francisco, Alameda, Contra Costa, Santa Clara and San Mateo counties.

TABLE 4.3-4
SUMMARY OF MONITORING DATA FOR THE SACRAMENTO VALLEY AIR BASIN, 1998–2001

Pollutant	State Std.	National Std.	Pollutant Concentration by Year			
			1998	1999	2000	2001
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.160**	**0.160**	**0.138**	**0.142**
Days over State Standard			62	59	42	36
Days over National Standard			14	7	5	2
Highest 8-hour average, ppm/	NA	0.08	**0.137**	**0.129**	**0.108**	**0.108**
Days over National Standard			60	43	35	25
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	7.1	6.6	6.3	5.3
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.018	0/014	0.008	0.017
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	0.101	0.110	0.085	0.090
Highest Annual average, ppm	---	0.053	0.021	0.021	0.019	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /b/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**104**	**141**	**58**	**66**
Days over State Standard			18	30	12	12
Days over National Standard			0	6	0	0
Highest annual average, $\mu g/m^3$	30	50	21	27	21	18

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Del Paso Manor station in Sacramento as regional values were not available.
/c/ 2001 data taken from the 3801 Airport station in Sacramento as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

The Bay Area Air Quality Management District (BAAQMD) is the local air quality management agency primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within the Bay Area. The jurisdictional boundary of BAAQMD coincides with the boundary of the Bay Area Air Basin.

Climate and Topography

The Bay Area is characterized by a complex terrain consisting of coastal mountain ranges, inland valleys and bays. The climate of the Bay Area is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the west coast of North America. High-pressure systems are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. In winter, the Pacific high pressure system shifts southward, allowing storms to pass through the region. During summer and fall, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

Attainment Status

The Bay Area is currently designated "nonattainment" for state and national ozone standards and for the state PM-10 standard (CARB, 2000). The Bay Area is further classified as a "serious" nonattainment area with respect to the State ozone standards and a "moderate" nonattainment area with respect to the federal ozone standards. Urbanized parts of the Bay Area are also designated as "maintenance" areas for the national carbon monoxide standard. The "maintenance" designation denotes that the area, now "attainment," had once been designated as "nonattainment." The Bay Area is "attainment" or "unclassified" with respect to the other ambient air quality standards.

Plans and Policies

Currently, there are three plans for the Bay Area:

- Ozone Attainment Plan for the 1-Hour National Ozone Standard (Association of Bay Area Governments (ABAG), 1999) developed to meet federal ozone air quality planning requirements;

- Bay Area 2000 Clean Air Plan (BAAQMD, 2000a), the most recent triennial update of the *1991 Clean Air Plan* developed to meet planning requirements related to the state ozone standard; and

- Carbon Monoxide Maintenance Plan (ABAG, 1994) developed to ensure continued attainment of the national carbon monoxide standard.

Rules and Regulations

As previously stated, BAAQMD is the regional agency with permit authority over most types of stationary emission sources in the Bay Area. BAAQMD exercises permit authority through its *Rules and Regulations*. Both federal and state ozone plans rely heavily upon stationary source control measures set forth in BAAQMD's *Rules and Regulations*. The overall stationary source control program that is embodied by the BAAQMD *Rules and Regulations* has been developed such that new stationary sources can be allowed to operate in the Bay Area without obstructing the goals of the regional air quality plans. To accomplish this objective, many new stationary sources are required to install Best Available Control Technology (BACT) and to provide offsets at a greater than 1:1 ratio in order to secure a permit to operate from the BAAQMD. Other stationary sources have been deemed too minor to require a permit, BACT or offsets. For example, BAAQMD Regulation 1, Rule 1-110.2, excludes any internal combustion engine used solely as an emergency standby source of power from all BAAQMD regulations, including the requirement to secure a permit to operate.

In contrast to the ozone plans, the *Carbon Monoxide Maintenance Plan* relies heavily on mobile source control measures, and since, once constructed, the project would generate essentially no mobile source emissions, it would have no effect on continued attainment of the national carbon monoxide standard.

Existing Air Quality Conditions

As the project also includes six of the nine Bay Area counties, for purposes of this document, existing air quality conditions have been reported basinwide. BAAQMD operates a regional air quality monitoring network that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-5** is a summary of regional monitoring data collected over the past four years for those pollutants for which the Bay Area is, or has been, designated "nonattainment." As shown in **Table 4.3-5**, the regional monitoring network has recorded violations of the state ozone standard on an average of approximately 18 days per year over the past four years. Coastal monitoring stations, such as those in San Francisco, Oakland, and San Rafael, record the fewest violations while inland valley stations, such as those in Livermore, Concord, and Gilroy, record the most violations. Violations of national one-hour and national eight-hour ozone standards occur less frequently: on approximately 4 and 8 days per year, respectively. **Table 4.3-5** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years. With respect to PM-10, the regional monitoring network records sporadic violations of the state 24-hour standard 5 days in 1998, 36 and 42 days in 1999 and 2000 and 2 days in 2001.

TABLE 4.3-5
SUMMARY OF MONITORING DATA FOR THE SAN FRANCISCO BAY AREA AIR BASIN 1998–2001

Pollutant	State Std.	National Std.	Pollutant Concentration by Year 1998	1999	2000	2001
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.147**	**0.156**	**0.152**	**0.123**
Days over State Standard			29	20	12	11
Days over National Standard			8	3	3	0
Highest 8-hour average, ppm/	NA	0.08	**0.111**	**0.122**	**0.144**	**0.096**
Days over National Standard			16	9	4	4
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	6.3	6.3	7.0	5.1
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.02	0.04	0.03	0.00
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /b/						
Highest 1-hour average, ppm	0.25	---	0.098	.0128	0.114	0.059
Highest Annual average, ppm	---	0.053	0.025	0.026	0.025	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**92**	**114**	**76**	**109**
Days over State Standard			5	36	42	2
Days over National Standard			0	0	0	0
Highest annual average, $\mu g/m^3$	30	50	23	25	24	25

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Concord station as regional values were not available.
/c/ 2001 data taken from the Livermore station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

North Central Coast Air Basin

The North Central Coast Air Basin (NCCAB) is comprised of Monterrey, Santa Cruz and San Benito Counties. The project area includes only Santa Cruz County. The Monterey Bay Unified Air Pollution Control District (MBUAPCD) is the agency with air pollution control authority over the entire NCCAB. The jurisdictional boundary of MBUAPCD coincides with the boundary of the NCCAB.

Climate and Topography

The basin lies along the central coast of California with the Santa Cruz Mountains dominating the northwest sector of the basin. The semi-permanent high pressure cell in the eastern Pacific is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys while the warmer air aloft acts as a lid to inhibit vertical air movement.

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure, which intensifies the onshore airflow during the afternoon and evening.

In Santa Cruz County, coastal mountains exert strong influence on atmospheric circulation and result in generally good air quality. Small inland valleys such as Scotts Valley with low mountains on two sides have poorer circulation than at Santa Cruz on the coastal plain. Scotts Valley is downwind of major pollutant generating centers, and these pollutants have time to form oxidants while in transit to Scotts Valley. Consequently, air pollutants tend to build up more at Scotts Valley than at Santa Cruz.

Attainment Status

NCCAB is designated as a nonattainment area for the State Ambient Air Quality Standards for ozone and PM-10. Because it has not violated the state ozone standard more than three times at any monitoring location within the district during the calendar year for 2000, the district is designated “nonattainment-transitional” for ozone by operation of law. Santa Cruz County is either attainment or unclassified with respect to other state and national ambient air quality standards.

Plans and Policies

The 1991 Air Quality Management Plan for the Monterey Bay Area (AQMP) was the first plan prepared in response to the CCAA that established specific planning requirements to meet the ozone standard. The Act requires that the AQMP be updated every three years. The 2000 AQMP is the third and most current update to the 1991 AQMP with the first two completed in 1994 and 1997, respectively. The AQMP addresses only attainment of the state ozone standard. Attainment

of the PM-10 standard is addressed in the District's 1998 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region.

Rules and Regulations

MBUAPCD is the regional agency with permit authority over most types of stationary emission sources in the NCCAB. As with other air districts, MBUAPCD exercises permit authority through its *Rules and Regulations*. According to the District's *Rules and Regulations*, new stationary sources are required to install BACT and to provide offsets in order to secure a permit to operate from MBUAPCD. Other stationary sources have been deemed too minor to require a permit, BACT or offsets. For example, Rule 2-201.4.11 exempts stationary sources such as any internal combustion engine used solely as an emergency standby source of power with a horsepower rating of less than 100 hp from permit requirements unless subject to BACT requirements under Rule 2-207. BACT shall not be required for any stationary source generating less than new or modified permit unit with a potential to emit 25 pounds per day or more of volatile organic compounds (VOCs) or NOx. The sources will also not be subject to offset requirements if they emit less than 137 pounds per day of VOCs or NOx. Construction equipment would be exempt from permitting requirements if they have been registered as portable equipment in accordance with the California Statewide Portable Engine Registration Program authorized under Title 13, Article 5, Sections 2450 through 2465, California Code of Regulations.

Existing Air Quality Conditions

Table 4.3-6 is a summary of regional monitoring data collected over the past four years for those pollutants for which NCCAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-6**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 5 days per year over the past five years. There have been no exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 2 days per year, over the same period. **Table 4.3-6** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years.

For PM-10, the regional monitoring network records exceedances of the state 24-hour standard at one or more of the monitoring stations on a regular basis. Based on available data, PM-10 exceedances are recorded at one or more of the stations in the basin. Note that in the PM-10 trend over the last three years is down and no state exceedances were recorded for 2001.

San Joaquin Valley Air Basin

The San Joaquin Valley Air Basin (SJVAB) includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings and Tulare counties, the western portion of Placer County, and the western half of Kern County. The project area includes only Fresno County within this basin.

TABLE 4.3-6
SUMMARY OF MONITORING DATA FOR THE NORTH CENTRAL COAST AIR BASIN, 1998–2001

Pollutant	State Std.	National Std.	Pollutant Concentration by Year			
			1998	1999	2000	2001
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.124**	**0.107**	**0.098**	**0.108**
Days over State Standard			10	3	3	3
Days over National Standard			0	0	0	0
Highest 8-hour average, ppm/	NA	0.08	**0.097**	**0.085**	**0.084**	**0.088**
Days over National Standard			6	1	0	2
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	3.5	3.7	2.4	1.4
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.00	0.01	0.00	0.01
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /b/						
Highest 1-hour average, ppm	0.25	---	0.085	0.054	0.071	0.032
Highest Annual average, ppm	---	0.053	0.010	0.005	0.007	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**76**	**103**	**74**	42
Days over State Standard			24	36	24	0
Days over National Standard			0	0	0	0
Highest annual average, $\mu g/m^3$	30	50	26	28	24	21

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Davenport station as regional values were not available.
/c/ 2001 data taken from the Watsonville station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is the agency with air pollution control authority over the entire San Joaquin Valley Air Basin. The jurisdictional boundary of the SJVUAPCD coincides with the boundary of the San Joaquin Valley Air Basin.

Climate and Topography

SJVAB is a topographically flat area bordered on the east by the Sierra Nevada mountains; on the west by the Coast Ranges; and to the south by the Tehachapi mountains. Airflow in SJVAB is primarily influenced by marine air that enters through the Carquinez Straits where the San Joaquin-Sacramento Delta empties into the San Francisco Bay (SJVUAPCD, 2001a). The region's topographic features restrict air movement through and out of the basin. As a result, SJVAB is highly susceptible to pollutant accumulation over time (SJVUAPCD, 2001a). Frequent transport of pollutants into SJVAB from upwind sources also contributes to poor air quality.

Wind speed and direction play an important role in dispersion and transport of air pollutants. During summer periods, winds usually originate out of the north end of SJVAB and flow in a south-southeasterly direction through the San Joaquin Valley, through the Tehachapi Pass and into the neighboring Southeast Desert Air Basin. During winter months, winds occasionally originate from the south end of the San Joaquin Valley and flow in a north-northwesterly direction. Also, during winter months, SJVAB experiences light, variable winds, less than 10 mph. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high concentrations of certain air pollutants.

The vertical dispersion of air pollutants in SJVAB is limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Air above and below an inversion does not mix because of differences in air density thereby restricting air pollutant dispersal.

Attainment Status

SJVAB is currently designated as "nonattainment" for national and state ozone and state PM-10 standards (CARB, 2000). The urbanized areas of Bakersfield, Fresno, Modesto, and Stockton were recently redesignated as "attainment" for the federal carbon monoxide standard. SJVAB is "attainment" or "unclassified" for the other ambient air quality standards.

Plans and Policies

The most current federal and state air quality plans that apply to SJVAB are:

- *California Clean Air Act Triennial Progress Report and Plan Revision 1997-1999.* This is the third triennial update to the *1991 Air Quality Attainment Plan for the San Joaquin Valley* that established the regulatory groundwork in order to bring the SJVAB into compliance with the CAAQS for ozone and CO. This plan identifies the SJVAB as both a source and receptor of transported ozone and concludes that attainment of the State ozone standard will not occur until upwind areas, such as the Bay Area and SVAB, substantially reduce their emissions of ozone precursors.

- *The Federal Ozone Attainment Demonstration Plan* (adopted November 14, 1994). This plan establishes the regulatory framework needed to bring the SJVAB into compliance with the national standards for ozone. This plan also satisfies the triennial review requirement for State Ambient Air Quality Standards under the CCAA.

- *1997 PM-10 Attainment Demonstration Plan*. This plan establishes the regulatory framework in order to bring the SJVAB into compliance with the national standards for PM-10 by the end of 2006, as prescribed by the EPA (SJVUAPCD, 2001a).

- *1992 Federal Attainment Plan for Carbon Monoxide*. This plan establishes the regulatory framework needed to bring the SJVAB into compliance with the national standards for CO. This plan demonstrates that CO attainment has already been achieved.

Rules and Regulations

SJVUAPCD is the agency primarily responsible for regulating stationary source emissions within SJVAB. SJVUAPCD is responsible for preparing the air quality plans (or portions thereof) for its jurisdiction. SJVUAPCD's primary means of implementing the above air quality plans is by adopting rules and regulations. Stationary sources within the jurisdiction are regulated by SJVUAPCD's permit authority over such sources and through its review and planning activities. For example, SJVUAPCD adopted its Regulation VIII-Fugitive Dust Control, Rule 8010, on October 21, 1993. This regulation consists of a series of emissions reduction rules intended to implement the *PM-10 Attainment Demonstration Plan*. The *PM-10 Attainment Demonstration Plan* emphasizes reducing fugitive dust as a means of achieving attainment of the federal standards for PM-10. The rule specifically addresses the following activities:

- construction, demolition, excavation, extraction;
- handling and storage of bulk materials;
- landfill disposal sites;
- paved and unpaved roads; and
- vehicle and/or equipment parking, shipping receiving, transfer, fueling, and service areas.

Existing Air Quality Conditions

SJVUAPCD operates a monitoring network to monitor ambient pollutant concentrations within its jurisdiction. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-7** is a summary of regional monitoring data collected over the past four years for those pollutants for which SJVAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-7**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 110 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 30 and 77 days per year, respectively, over the same period. **Table 4.3-7** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years.

TABLE 4.3-7
SUMMARY OF MONITORING DATA FOR THE SAN JOAQUIN VALLEY AIR BASIN, 1998-2001

Pollutant	State Std.	National Std.	Pollutant Concentration by Year 1998	1999	2000	2001
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.169**	**0.155**	**0.165**	**0.149**
Days over State Standard			90	123	114	110
Days over National Standard			39	28	30	22
Highest 8-hour average, ppm/	NA	0.08	**0.136**	**0.123**	**0.131**	**0.118**
Days over National Standard			84	117	103	102
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	8.0	7.8	6.6	6.0
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	NA	0.01	0.00	0.01
Days over State Standard			NA	0	0	0
Days over National Standard			NA	0	0	0
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	0.112	0.108	0.099	0.075
Highest Annual average, ppm	---	0.053	0.023	0.027	0.024	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**160**	**183**	**145**	**193**
Days over State Standard			114	174	180	15
Days over National Standard			6	9	0	1
Highest annual average, $\mu g/m^3$	30	50	**32**	**50**	**45**	**42**

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Bakersfield station as regional values were not available.
/c/ 2001 data taken from the Fresno station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data* , 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

With respect to PM-10, the regional monitoring network records exceedances of the state and federal 24-hour and state annual standards at one or more of the monitoring stations on a regular basis.

South Coast Air Basin

The South Coast Air Basin (SCAB) is a 6,600 square mile area bounded by the Pacific Ocean on the west and the San Gabriel, San Bernardino, and San Jacinto Mountains on the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, which can be described as the southwestern three-quarters of Los Angeles County, the southwestern corner of San Bernardino County and western one third of Riverside County. The project area includes urbanized areas of all four counties located within this air basin.

The South Coast Air Quality Management District (SCAQMD) is the regional air pollution control agency with jurisdiction over an area of approximately 12,000 square miles, consisting of the four-county SCAB and the Los Angeles County portion of the Mojave Desert Air Basin and the Riverside County portions of the Salton Sea Air Basin (SSAB).

Climate and Topography

The topography and climate of Southern California combine to create an area of high air pollution potential in SCAB. During the summer months, 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 cup over the cool marine layer, which prevents pollution from dispersing upward. This inversion allows pollutants to accumulate within the lower layer. Light winds during the summer further limit ventilation.

Because of the low average wind speeds in the summer and a persistent daytime temperature inversion, emissions of hydrocarbons and oxides of nitrogen have an opportunity to combine with sunlight in a complex series of reactions. These reactions produce a photochemical oxidant commonly known as "smog." Because the region experiences more days of sunlight than any other major urban area in the United States, except Phoenix, the smog potential in the region is higher than in most other major metropolitan areas in the country.

The climate of Southern California is controlled largely by the strength and position of the subtropical high-pressure cell over the Pacific Ocean. This high-pressure cell produces a typical Mediterranean climate with warm summers, mild winters, and moderate rainfall. Cyclic land and sea breezes are the primary factors affecting the region's mild climate. The daytime winds are normally sea breezes, predominantly from the west, that flow at relatively low velocities. Temperatures are normally mild with rare exceptions. This pattern is infrequently interrupted by periods of extremely hot weather brought in by Santa Ana winds.

Attainment Status

SCAB is currently designated as a nonattainment area for state and national ambient air quality standards for ozone and PM-10 (Air Resources Board, 1999). The South Coast is also a nonattainment area for the national carbon monoxide standard and a "maintenance" area for the national nitrogen dioxide standard, which denotes that it had once been a nonattainment area for that pollutant standard as well. Further, SCAB is the only region in California and the nation

classified as "extreme" for ozone under the Federal classification. It is also classified as "extreme" under the CCAA.

Plans and Policies

For the South Coast, current federal and state air quality planning requirements have been consolidated into a single plan, the *1997 Air Quality Management Plan* (1997 AQMP), which is the latest in a series of plans that have been developed over the past several decades (SCAQMD, 1996). The following paragraphs briefly discuss the control strategies outlined in the 1997 AQMP for pollutants of concern in SCAB.

Ozone. As mentioned above, the South Coast has been further classified pursuant to the FCAA Amendments of 1990 as an "extreme" nonattainment area with respect to the national ozone standard. "Extreme" ozone nonattainment areas must demonstrate attainment within 20 years of enactment (i.e., by 2010). The ozone strategy included in the 1997 AQMP builds upon a regulatory foundation established over the last several decades to improve air quality conditions in the South Coast. One of the key elements of the ozone strategy is a program referred to as New Source Review (NSR), which is a program that new and modified stationary sources undergo to secure a permit from the regional air district. The NSR program established by regional air quality management district meets the requirements for areas designated as "extreme" ozone nonattainment and requires new sources to install BACT and, in many cases, offsets in order to reduce overall stationary source emissions of ozone precursors. (Ozone precursors include VOCs and NOx) The 1997 AQMP carries forward a number of control measures identified in previous plans related to specific categories of stationary sources, on-road mobile sources, and off-road mobile sources. The 1997 AQMP predicts that the control strategy will attain the national ozone standard by 2010 but does not include an attainment date for the more stringent state ozone standard. In December 1999, the ozone strategy of the 1997 AQMP was amended to include additional control measures and to accelerate the effective dates of other measures. The EPA is proposing to approve this amended ozone strategy (EPA, 2000).

PM-10. Pursuant to FCAA Amendments of 1990, the South Coast has been designated as a "serious" PM-10 nonattainment area for the national PM-10 standard. The 1997 AQMP serves as the PM-10 Attainment Demonstration Plan. This PM-10 plan relies upon control of area sources, known as "fugitive" dust sources, such as construction sites, heavily traveled publicly maintained unpaved roads, and agricultural activities. To regulate such sources in the South Coast, the regional air district has adopted Rule 403 (Fugitive Dust). The purpose of Rule 403 is to implement the fugitive dust control measures in the applicable federal PM-10 Plan. The PM-10 attainment strategy set forth in the 1997 AQMP relies upon implementation of more stringent Best Available Control Measures (BACM) for sources of fugitive dust than has been required in the past. The 1997 AQMP predicts that the national PM-10 standard will be attained by 2006.

Carbon Monoxide. The South Coast is designated as a "serious" nonattainment area for the national CO standard. The 1997 AQMP serves as the CO Attainment Demonstration Plan. The CO attainment strategy depends upon stationary-source NSR requirements, increasingly stringent

mobile-source tailpipe emissions standards, and oxygenated gasoline fuel specifications. Carbon monoxide emissions have been substantially reduced over the past decade, and the 1997 AQMP predicts that the national carbon monoxide standard will be attained throughout the South Coast by 2000.

Nitrogen Dioxide. In July 1998, the South Coast was redesignated by U.S. EPA from "nonattainment" to "unclassified / attainment" for the national nitrogen dioxide standard. As such, the Air Basin became a "maintenance" area for that standard, and the 1997 AQMP serves as the Nitrogen Dioxide Maintenance Plan of the South Coast. Maintenance of the nitrogen dioxide standard will depend upon continued implementation of the NSR program for stationary sources, reductions in mobile-source emissions, as well as new control measures that are included as part of the ozone attainment strategy.

Rules and Regulations

The regional agency responsible for developing the prior mentioned plans is SCAQMD, the agency with permit authority over most types of stationary sources in the South Coast. SCAQMD exercises permit authority through its *Rules and Regulations*, which has evolved to reflect State and federal requirements for "extreme" ozone nonattainment areas. Under SCAQMD's *Rules and Regulations*, new stationary sources must secure a permit to construct (Rule 201) and a permit to operate (Rule 203) and must comply with NSR requirements (set forth in SCAQMD Regulation XIII). NSR sets forth pre-construction review requirements for new, modified, or relocated facilities to ensure that the operation of such facilities does not interfere with progress in attainment of State and national ambient air quality standards and that future economic growth within the South Coast is not unnecessarily restricted. The specific air quality goal of NSR is to achieve no net increases from new or modified permitted sources of nonattainment pollutants or their precursors.

During construction, the project would be subject to the requirements of Rule 403 – Fugitive Dust. SCAQMD Rule 403 does not require a permit for construction activities, per se, but rather, sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the South Coast Air Basin. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) such that the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source. SCAQMD Rule 403 also prohibits a construction site from causing an incremental PM-10 concentration impact at the property line of more than 50 micrograms per cubic meter as determined through PM-10 high-volume sampling, but the concentration standard and associated PM-10 sampling do not apply if specific measures identified in the rule are implemented and appropriately documented.

SCAQMD Rule 403 identifies two sets of specific measures: one for high wind conditions and the other for more normal wind conditions.

When wind gusts exceed 25 miles per hour, neither the sampling requirement nor the general requirement apply so long as the following measures are implemented and appropriately documented:

Source	Control Measure
Earthmoving	Cease all active operations, or apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed Surface Areas	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days, apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; or Apply chemical stabilizers prior to wind event, or Apply water to all unstabilized disturbed areas 3 times per day. (If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day); or Establish a vegetative ground cover within 21 days after active operations have ceased. (Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all time thereafter); or Utilize any combination of the three measures immediately preceding such that, in total, these actions apply to all disturbed surface areas.
Unpaved Roads	Apply chemical stabilizer s prior to wind event, or apply water twice per hour during active operation, or stop all vehicular traffic.
Open Storage Piles	Apply water twice per hour, or install temporary coverings.
Paved Road Track-out	Cover all haul vehicles, or comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both pubic and private roads.

During normal wind conditions (i.e., with wind gusts less than 25 miles per hour), the sampling requirement does not apply so long as the following measures are implemented and appropriately documented:

Source	Control Measure
Earthmoving (not including cut and fill)	Maintain soil moisture content at a minimum of 12 percent, or for earthmoving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earthmoving (construction fill areas)	Maintain soil moisture content at a minimum of 12 percent. For areas which have an optimum moisture content for compaction of less than 12 percent, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content.
Earthmoving (construction cut areas)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed Surface Areas (except completed grading areas)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust, must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed Surface Areas (completed grading areas)	Apply chemical stabilizers within five working days of grading completion; or apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, except any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; or establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter.
Inactive Disturbed Surface Areas	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, except any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; or apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; or establish a vegetative ground cover within 21 days after active operations have ceased (ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter); or utilize any combination of the above three measures such that, in total, these actions apply to all inactive disturbed surface areas.

Source	Control Measure
Unpaved Roads	Water all roads used for any vehicular traffic at least once per every two hours of active operations; or water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; or apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open Storage Piles	Apply chemical stabilizers; or apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; or install temporary coverings; or install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.

Finally, SCAQMD Rule 403 requires those engaged in hauling operations to take actions necessary to prevent or remove (within one hour) the track-out of bulk material onto public paved roadways. Alternatively, one may implement these specific actions:

- Pave or apply chemical stabilization at sufficient concentrations and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet; or

- Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.

Under either specific alternative course of action, the following additional requirements apply:

- Removal of track-out material at anytime it extends for a cumulative distance of greater than 50 feet onto any paved public paved road during active operations; and

- Remove all visible roadway dust track-out upon public paved roadways as a result of active operations at the conclusion of each workday when active operations cease.

Existing Air Quality Conditions

SCAQMD operates a regional air quality monitoring network that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-8** is a summary of regional monitoring data collected over the past four years for those pollutants for which the South Coast is, or has been, designated "nonattainment."

As shown in **Table 4.3-8**, the regional monitoring network has recorded violations of the state ozone standard on an average of approximately 116 days per year over the past four years.

Coastal monitoring stations, such as those in western Los Angeles County and Orange County, record the fewest violations while inland stations, such as those in eastern Riverside County and southwestern San Bernardino County, record the most violations. Violations of national one-hour and national eight-hour ozone standards occur less frequently: on approximately 42 and 93 days per year, respectively.

TABLE 4.3-8
BASINWIDE SUMMARY OF MONITORING DATA FOR THE SOUTH COAST AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.244**	**0.174**	**0.184**	**0.190**
Days over State Standard			107	111	115	131
Days over National Standard			60	39	33	36
Highest 8-hour average, ppm/	NA	0.08	**0.206**	**0.142**	**0.149**	**0.144**
Days over National Standard			93	93	94	93
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	**13.3**	**11.2**	**10.1**	7.61
Days over State Standard			13	11	6	0
Days over National Standard			13	7	3	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.01	0.02	0.04	0.01
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	**0.255**	**0.307**	0.214	0.114
Highest Annual average, ppm	---	0.053	0.043	0.051	0.044	NA
Days over State Standard			1	NA	0	0
Suspended Particulate Matter /c/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**116**	**183**	**139**	**95**
Days over State Standard			186	258	246	17
Days over National Standard			0	6	0	0
Highest annual average, $\mu g/m^3$	30	50	**43**	**65**	**55**	**48**

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Riverside station as regional values were not available.
/c/ 2001 data taken from the San Bernardino station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

Table 4.3-8 also shows that state and federal carbon monoxide standard standards have been violated on an average of 8 and 6 days per year over the past four years, respectively. There have been no violations of sulfur dioxide standards. For nitrogen dioxide, violations of the ambient standard are very rare (<1day per year). Finally, the regional monitoring network records violations of the state 24-hour and annual PM-10 standards on a regular basis.

San Diego Air Basin

The San Diego Air Basin (SDAB) is defined by the borders of San Diego County. The San Diego County Air Pollution Control District (SDCAPCD) is the agency with air pollution control authority over SDAB, which covers the county of San Diego. The jurisdictional boundary of SDCAPCD coincides with the boundary of SDAB.

Climate and Topography

San Diego County is characterized by a long, narrow coastal plain extending along the entire length of the western edge of the county. At the southern end of the coastal plain lies the San Diego Bay. In the northern part of the county, the plain is narrow, and to the east gives way to steeply sloping hills, which in turn rise to mountains of 1,700 to 2,000 feet elevation or more. The climate of SDAB is influenced strongly by the Pacific Ocean and its semi-permanent pressure systems, which produce wet winters and dry summers. The area displays the typical southern California climatic transition from seashore to mountain summits, encompassing each of the five major southern California climatic zones. Generally, SDAB experiences a mild climate tempered by cool sea breezes with light average wind speeds. This mild pattern is interrupted occasionally by periods of extremely hot weather, winter storms moving inland from the Pacific Ocean, or Santa Ana winds. Subsidence inversions occur frequently over the air basin, contributing with strong sunlight and the restraining influence of topography to conditions that are conducive to the formation of photochemical pollutants, such as ozone.

Attainment Status

SDAB is currently designated as a nonattainment area for state and national one-hour-average ozone standards and as a nonattainment area for the state PM-10 standard (CARB, 1999). SDAB is further classified as a “severe” nonattainment area with respect to the national one-hour ozone standard. The western three-quarters of SDAB is also designated as a “maintenance” area for the national carbon monoxide standard, which denotes that it had once been designated as a federal nonattainment area for that standard.

Plans and Policies

San Diego’s original portion of the SIP, known as the *Regional Air Quality Strategy*, was developed in the early to mid-1970s and subsequently revised in 1979, 1982, 1992, 1993 and 1994. Substantial air quality improvement has been made. By 1990, SDAB was no longer “nonattainment” for national standards for nitrogen dioxide and particulates, and thus post-1990 SIP revisions were focused on the two pollutants, ozone and carbon monoxide, for which the air basin remained “nonattainment.” The latest SIP was submitted to U.S. EPA in 1994. The 1994

SIP approved by the EPA in January 1997 predicted attainment of the national ozone standard by 1999, and in 1999, for the first time since air quality monitoring began in San Diego County, no exceedances of the national one-hour ozone standard were recorded within SDAB.

With respect to national carbon monoxide standards, the EPA has re-designated SDAB as "attainment" and has approved a "Maintenance Plan" that shows how the standard will continue to be maintained in the future. This Maintenance Plan represents the current carbon monoxide SIP for SDAB.

In 1991, the Regional Air Quality Strategy (RAQS) was developed to meet the requirements of the CCAA, which addressed the "nonattainment" status of the air basin with respect to state standards for ozone, carbon monoxide, and nitrogen dioxide (SDAPCD, 1992). As required under state air quality planning law, RAQS has been updated on a triennial basis. Since the air basin had achieved "attainment" of the state carbon monoxide and nitrogen dioxide standards, the first triennial update for SDAB (the 1995 Update) addressed only ozone nonattainment issues. A second triennial update (1998 Update), which includes several revised control measures, was adopted by SDAPCD in June 1998.

Rules and Regulations

Air Quality in SDAB is regulated by SDAPCD through its permit authority over most types of stationary sources in San Diego County and through its planning functions. SDAPCD exercises permit authority through its *Rules and Regulations*. The types of emissions sources that would be associated with the project, including mobile equipment and trucks related to construction, are generally not subject to SDAPCD permitting requirements. However, certain SDAPCD rules apply to all projects, such as nuisance rules and restrictions on use of cutback and emulsified paving materials.

Existing Air Quality Conditions

SDAPCD operates a regional air quality-monitoring network that provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. **Table 4.3-9** is a summary of regional monitoring data collected over the

past four years for those pollutants for which SDAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-9**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 30 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occur less frequently: on approximately 3 and 19 days per year, respectively. Coastal monitoring stations record the fewest exceedances while inland stations, in the foothills east of the metropolitan area, record the most exceedances. **Table 4.3-9** also shows that no violations of the carbon monoxide, sulfur dioxide and nitrogen dioxide standards have been recorded over the past four years.

TABLE 4.3-9
SUMMARY OF MONITORING DATA FOR THE SAN DIEGO AIR BASIN, 1998–2001

			Pollutant Concentration by Year			
Pollutant	**State Std.**	**National Std.**	**1998**	**1999**	**2000**	**2001**
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.164**	**0.124**	**0.124**	**0.135**
Days over State Standard			54	27	24	13
Days over National Standard			9	0	0	1
Highest 8-hour average, ppm/	NA	0.08	**0.141**	**0.100**	**0.106**	**0.116**
Days over National Standard			35	16	16	8
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	4.8	6.0	5.9	5.11
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Sulfur Dioxide /b/						
Highest 24-hour average, ppm	0.04	0.14	0.02	0.02	0.01	0.015
Days over State Standard			0	0	0	0
Days over National Standard			0	0	0	0
Nitrogen Dioxide /b/						
Highest 1-hour average, ppm	0.25	---	0.132	0.172	0.117	0.070
Highest Annual average, ppm	---	0.053	0.023	0.026	0.024	NA
Days over State Standard			0	0	0	0
Suspended Particulate Matter /b/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**89**	**121**	**139**	**64**
Days over State Standard			108	126	111	1
Days over National Standard			0	0	0	0
Highest annual average, $\mu g/m^3$	30	50	**39**	**48**	**32**	27

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Chula Vista station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

For PM-10 **Table 4.3-9** shows that exceedances of the state 24-hour and annual standards frequently occur in the basin although the four year trend shows a declining incidence of exceedances.

Salton Sea Air Basin

The Salton Sea Air Basin (SSAB) includes all of Imperial County and the central one-third portion of Riverside County. The project area includes only portions of Imperial County as shown in **Figure 3-4** of Chapter 3, Project Description of this document. The Imperial County Air Pollution Control District (ICAPCD) is the agency with air pollution control authority over all of Imperial County.

Climate and Topography

The southern portion of SSAB is a part of the larger physiographic province of the Salton Trough. This province is a very flat basin surrounded by mountains: the Peninsular Ranges to the west, the Chocolate, Orocopia and Cargo Muchaco Mountains to the east. Most of the trough is below sea level, and consists generally of desert, with agricultural land uses located at the north and south of the Salton Sea.

Climatic conditions in SSAB are governed by the large-scale sinking and warming of air in the semi-permanent subtropical high pressure center of the Pacific Ocean. The high pressure ridge blocks out most mid-latitude storms except in the winter when the high is weakest and farthest south. Similarly, the coastal mountains prevent the intrusion of any cool, damp marine air found in California coastal environs. Because of the weakened storms and the orographic barrier, SSAB experiences clear skies, very low humidities, extremely hot summers, mild winters, and little rainfall. The flat terrain of the valley and the strong temperature differentials created by intense solar heating produce moderate winds and deep thermal convection.

The combination of subsiding air, protective mountains and distance from the ocean all combine to severely limit precipitation. Rainfall is highly variable with precipitation from a single heavy storm exceeding the entire annual total during a later drought condition.

Imperial County, in particular, experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken allowing pollutants to more easily disperse. Weak, surface inversions are caused by cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing downslope from the hills and pooling on the valley floor.

The presence of the Pacific high pressure cell can cause the air mass aloft to sink. As the air descends, compressional heating warms it to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the buildup of pollutants. Highest or worst-case ozone levels are often associated with the presence

of this type of inversion. Subsidence inversions are common from November through June, but appear to be relatively absent July through October.

Attainment Status

Imperial County is designated as a "transitional" federal nonattainment area for ozone and as a "moderate" federal nonattainment area for PM-10. Imperial County is also classified as a "moderate" nonattainment area for the state ozone standard. Except the area of Calexico, which is classified as nonattainment, the remainder of the County is unclassified with respect to the state CO standard. The entire SSAB is classified as "nonattainment" with respect to the state PM-10 standard. The County is either attainment or unclassified with respect to other state and national ambient air quality standards.

Plans and Policies

Three air quality plans apply to Imperial County, two related to ozone and one related to the national PM-10 standard. In 1979, Imperial County was designated as a nonattainment area due to periodic violations of the national oxidant standard (which has been replaced by the current ozone standard). In response to that designation, Imperial County prepared a "nonattainment plan" in 1979 as required by federal law. The 1979 nonattainment plan became the federal ozone plan for Imperial County. It proposed the adoption and implementation of a set of stationary source control measures designed to attain the national ozone standard by the end of 1987. Under the FCAA Amendments of 1990, Imperial County's designation of nonattainment for the national ozone standard was confirmed under provisions of the Act that also recognize the possibility that international border areas may face special problems in attaining the standard.

The state ozone plan, the *1991 Air Quality Attainment Plan*, was prepared in compliance with the CCAA.[1] The *1991 Air Quality Attainment Plan* recognizes the substantial influence of pollutant transport from Mexico and the SCAB on the ozone problem in Imperial County but also includes a stationary source control measure program to reduce emissions generated within the County. The state ozone plan normally is updated on a triennial basis, but since the SSAB (which includes Imperial County) has a unique air quality problem in that an overwhelming significant portion of its air pollution is from upwind sources, an update to the *1991 Air Quality Attainment Plan* will not be required until the significance of these upwind sources has been quantified.[2]

The applicable PM-10 air quality plan is the federal *State Implementation Plan for PM-10 in the Imperial Valley*.[3] The PM-10 plan includes a range of measures intended to achieve attainment of the national PM-10 standards in the Imperial Valley Planning Area, which covers the western three-quarters of the county.

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1 Imperial County Air Pollution Control District, *1991 Air Quality Attainment Plan*, April 1992.

2 Romero, Ray, Imperial County Air Pollution Control District, Personal Conversation, April 27, 1999.

3 Imperial County Air Pollution Control District, *State Implementation Plan for PM-10 in the Imperial Valley*, June 1993.

Both federal and state ozone plans rely heavily upon stationary source control measures set forth in ICAPCD's *Rules and Regulations*, including New Source Review (NSR). ICAPCD Rule 207 contains the NSR requirements for new stationary sources proposed within ICAPCD's jurisdiction. As part of the ozone attainment strategy under the applicable federal and state air quality plans, ICAPCD has tightened NSR requirements to provide for no significant net increase in emissions from new and modified stationary sources. One of the purposes of Rule 207 is to provide mechanisms through which new sources can be allowed to operate without interfering with the attainment or maintenance of ambient air quality standards.

The federal PM-10 plan relies on control of area sources, known as "fugitive" dust sources, such as track out/carry out, unpaved roads, bulk material handling activities, material transport activities, and haul trucks. To regulate such sources, ICAPCD adopted Regulation VIII (Fugitive Dust Requirements for Control of Fine Particulate Matter), which contains the measures from the PM-10 plan for attaining the national PM-10 standards.

Rules and Regulations

ICAPCD is the regional agency with permit authority over most types of stationary emission sources in the Imperial County. As with other air districts, ICAPCD exercises permit authority through its *Rules and Regulations*. Rule 2-201 requires all new and modified sources of emissions to obtain an Authority to Construct and a Permit to Operate. However, Rule 2-202.E exempts stationary internal combustion engines less than 50 hp from permitting requirements. Portable equipment such as construction equipment are also exempt from permitting requirements if they hold a valid registration under the Statewide Portable Equipment Registration Program pursuant to Title 13, Article 5, Sections 2450 - 2465 of the California Code of Regulations.

Existing Air Quality Conditions

Table 4.3-10 is a summary of regional monitoring data collected over the past four years for those pollutants for which SSAB is, or has been, designated "nonattainment."

As shown in **Table 4.3-10**, the regional monitoring network has recorded exceedances of the state ozone standard on an average of approximately 68 days per year over the past four years. Exceedances of the national one-hour and eight-hour ozone standards occurred on an average of approximately 12 and 38 days per year, respectively, over the same period.

Table 4.3-10 shows that state and federal carbon monoxide standard standards have been violated on an average of 8 and 7 days per year over the past four years, respectively. There have been no violations of sulfur dioxide standards. For nitrogen dioxide, violations of the ambient standard occurred in 1998 and 1999 but levels have declined in the last two years to below the standard level.

For PM-10, the regional monitoring network records exceedances of the state and federal 24-hour and annual standards at one or more of the monitoring stations on a frequent basis.

TABLE 4.3-10
SUMMARY OF MONITORING DATA FOR THE SALTON SEA AIR BASIN, 1998–2001

Pollutant	State Std.	National Std.	Pollutant Concentration by Year			
			1998	1999	2000	2001
Ozone						
Highest 1-hour average, ppm /a/	0.09	0.12	**0.236**	**0.171**	**0.169**	**0.137**
Days over State Standard			73	88	54	56
Days over National Standard			13	25	5	6
Highest 8-hour average, ppm/	NA	0.08	**0.136**	**0.110**	**0.113**	**0.113**
Days over National Standard			40	35	33	43
Carbon Monoxide						
Highest 8-hour average, ppm	9.0	9	**14.4**	**17.9**	**15.5**	1.41
Days over State Standard			12	13	7	0
Days over National Standard			8	11	6	0
Sulfur Dioxide						
Highest 24-hour average, ppm	0.04	0.14	0.02	0.02	0.01	NA
Days over State Standard			0	0	0	NA
Days over National Standard			0	0	0	NA
Nitrogen Dioxide /c/						
Highest 1-hour average, ppm	0.25	---	**0.257**	**0.286**	0.192	0.081
Highest Annual average, ppm	---	0.053	0.016	0.018	0.016	NA
Days over State Standard			NA	NA	0	0
Suspended Particulate Matter /b/						
Highest 24-hour average, $\mu g/m^3$ /a/	50	150	**176**	**227**	**268**	**383**
Days over State Standard			234	264	312	18
Days over National Standard			12	30	33	1
Highest annual average, $\mu g/m^3$	30	50	**59**	**66**	**73**	**45**

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
/a/ ppm, parts per million; $\mu g/m^3$, micrograms per cubic meter.
/b/ 2001 data taken from the Palm Springs station as regional values were not available.
/c/ 2001 data taken from the El Centro station as regional values were not available.

SOURCE: California Air Resources Board, *Summaries of Air Quality Data*, 1998, 1999, 2000, 2001; http://www.arb.ca.gov/adam/welcome.html.

4.3.2 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Generally, a project would have the potential to have a significant effect on air quality if it would:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any nonattainment pollutant;
- expose sensitive receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.

In addition, for analysis of individual projects, many of the air districts have developed air quality thresholds and tests of significance used to determine whether project-related air quality impacts need to be mitigated. These thresholds vary by air district and are summarized in **Table 4.3-11**. Most of the thresholds of significance shown in **Table 4.3-11** are based on CEQA air quality guidelines published by individual air districts. Some air districts have not identified significance thresholds.

Some air districts have set significance thresholds for both project construction and operation. Others, such as BAAQMD and the SJVUAPCD have opted not to set significance thresholds for construction. Instead, construction activities within these air districts are required to implement certain mitigation measures identified by the local air district that will reduce impacts to less than significant levels.

Emissions increases resulting from the installation of telecommunications infrastructure will have to be evaluated against applicable significance criteria recommended by the local air districts whose jurisdictions cover the areas in which the infrastructure would be located.

The primary impact of air quality emissions resulting from subsequent activities would be temporary and result from construction activities associated with installation of fiber optic cable facilities. Over the operational phase of these activities, emissions could be generated by the infrequent operation of emergency backup generators at potential regenerator / OP-AMP stations during electrical outages and maintenance activities and from a very small number of occasional motor vehicle trips associated with maintenance activities.

METHODOLOGY TO ESTIMATE CONSTRUCTION EMISSIONS

As described in Section 3.3, Project Description, installation of fiber optic cable facilities as part of subsequent activities could involve various numbers of construction crews performing different activities at various times in various locations. The three primary methods of installation of fiber optic cable facilities are:

TABLE 4.3-11
SIGNIFICANCE THRESHOLDS FOR CONSTRUCTION AND OPERATIONAL EMISSIONS FROM SUBSEQUENT ACTIVITIES

Construction Emissions

	Significance Thresholds (lb/day)					
Local Air District	**ROG**	**NO_X**	**PM-10**	**CO**	**SO_2**	**Basis**
Sacramento Metropolitan AQMD	None[a]	85	275	N/A	N/A	SMAQMD CEQA Guidelines
Bay Area AQMD[b]	N/A	N/A	N/A	N/A	N/A	BAAQMD CEQA Guidelines
Monterrey Bay Unified APCD	N/A	N/A	82	N/A	N/A	CEQA Air Quality Guidelines
San Joaquin Valley Unified APCD[c]	N/A	N/A	N/A	N/A	N/A	SJVUAPCD Guidelines
South Coast AQMD[d]	75	100	150	550	150	CEQA Air Quality Handbook
San Diego County APCD	75	100	150	550	150	SCAQMD Guidelines Used[e]
Imperial County APCD	75	100	150	550	150	SCAQMD Guidelines Used[f]

Operational Emissions

	Significance Thresholds (lb/day)					
Local Air District	**ROG**	**NO_X**	**PM-10**	**CO**	**SO_2**	**Basis**
Sacramento Metropolitan AQMD	65[g]	65[h]	275	N/A	N/A	SMAQMD CEQA Guidelines
Bay Area AQMD	80	80	80	550	N/A	BAAQMD CEQA Guidelines
Monterrey Bay Unified APCD	137	137	82	N/A	150	CEQA Air Quality Guidelines
San Joaquin Valley Unified APCD	10 tpy	10 tpy	N/A	N/A	N/A	SJVUAPCD Guidelines
South Coast AQMD	55	55	150	550	150	CEQA Air Quality Handbook
San Diego County APCD	55	55	150	550	150	SCAQMD Guidelines Used
Imperial County APCD	55	55	150	550	150	SCAQMD Guidelines Used

NOTE: lb/day = pounds per day; tpy = tons per year

[a] Effective March 28, 2002 the SMAQMD has revised the construction threshold for ROG from 85 lb/day to none, SMAQMD, April 12, 2002.
[b] All construction impacts are considered significant, however, with application of standard dust control measures impacts are mitigated to less than significant.
[c] Ibid.
[d] While daily values are shown, the following quarterly values apply as well; 2.5 tons per quarter of ROC and NOx, 24.75 tons per quarter of CO, and 6.75 tons per quarter of PM-10 and SO2.
[e] SDAPCD has no current significance thresholds for CEQA purposes. SCAQMD guidelines have been assumed for the purposes of this analysis.
[f] ICAPCD has no current significance thresholds for CEQA purposes. SCAQMD guidelines have been assumed for the purposes of this analysis.
[g] Effective March 28, 2002 the SMAQMD has lowered the operation threshold for ROG and NOx from 85 to 65 lb/day, SMAQMD, April 12, 2002.
[h] Ibid.

SOURCE: Environmental Science Associates, 2002

- Underground Installation – This includes the following three methods for the installation of conduit followed by installation of fiber optic cable:
  - Open Trenching (street and dirt)
  - Directional Boring
  - Plow and Trench installation
- Aerial Installation
- Installation of cable on Transmission Towers (OPGW)

From an air quality emissions perspective, the primary emissions generating activities would be those involving ground disturbance or use of larger construction equipment. Emissions from a single crew for each of these three activities have been evaluated using US EPA and CARB emissions factors and data provided by Sempra Communications. These activities are:

- open trenching. Dirt trenching was used to evaluate emissions as it represents the worst case scenario (compared to street trenching and plow and trench installation);
- directional boring; and
- OPGW installation.

Total construction emissions would vary depending on the type and number of construction crews operational on any given day.

For street trenching, it is assumed that the construction zone at each work site on any given day would be no more than approximately 20 to 40 feet wide and, no more than 1,000 feet in length for a total disturbed area of less than one acre. Note that a less invasive form of dirt trenching (plow and trench) may be proposed for use in some areas. For the purposes of this analysis, although plow and trench operations would typically produce a smaller ground disturbance area, use less equipment and result in lower emissions it will be considered to have essentially the same emissions as dirt trenching to provide a conservative estimate. Furthermore, street trenching involves more equipment and produces higher levels of emissions than dirt trenching. Again for this analysis, street trenching operations will be used to conservatively estimate the impact of all trenching operations.

Directional boring would involve ground disturbance only at the entry and exit points of the bore and at construction staging areas. OPGW installation would involve minimal to no ground disturbance; however, emissions from support vehicles and the potential use of helicopters in installation would occur.

Given the size of the project area and an unknown number of crews or mix of crews required to perform construction throughout the project area, the total daily construction emissions cannot be determined for this analysis. However, the individual expected daily emissions from each type of

crew can be estimated. These are presented in **Table 4.3-12**. Based on the location of subsequent activities and the number and mix of crews that could be used, total construction emissions would be calculated using emissions estimates for different crews in **Table 4.3-12** and then compared to applicable significance thresholds in **Table 4.3-11** to determine significance of construction impacts. Appropriate mitigation measures recommended below shall be implemented as appropriate based on the significance of the impact.

TABLE 4.3-12
EMISSIONS FROM A SINGLE CREW FOR DIFFERENT CONSTRUCTION TECHNIQUES (lbs./crew)

Crew	ROG	NO_X	PM-10	CO	SO_2
Trenching	3	26	3	21	2
Drilling	5	16	2	75	1
OPGW[1]	11	46	10	20	1

SOURCE: Environmental Science Associates, 2002

IMPACT DISCUSSION

Impact AIR-1: Construction activities could increase local pollutant concentrations of particulate matter (from fugitive dust) and carbon monoxide. (Potentially Significant)

Ground disturbance caused by installation of telecommunications infrastructure could temporarily affect pollutant concentrations within the project area primarily due to fugitive dust sources, such as earthmoving activities and vehicle travel over unpaved surfaces or paved surfaces heavily laden with earthen materials (e.g., from soil inadvertently spilled onto the traveled way). Fugitive dust emissions from construction activities would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. Fugitive dust emissions from construction activities would be relatively minor if fiber optic cable facilities installation would takes place within existing roadways. This would minimize the extent of vehicle travel over unpaved surfaces, which is typically one of the principal sources of construction-related fugitive dust. However, circumstances may exist where construction activities could result in substantial quantities of dust, when construction occurs in unpaved areas. In the absence of mitigation measures, this would be a significant impact, and as a result, local visibility and PM-10 concentrations may be adversely affected on a temporary and intermittent basis during the construction period.

For installation of OPGW, while no surface disturbance would be required, vehicle travel over paved and unpaved surfaces would generate dust similar to ground installation activities.

To reduce these potentially significant effects to a less-than-significant level, Sempra Communications would require the construction contractors to implement a construction dust

abatement program, which is described below, as part of the project. Implementation of the dust abatement program would reduce the chance that PM-10 standards would be violated in the project area or that visibility would be significantly affected during the construction period. This dust abatement program would also provide the basis for the project's compliance with any requirements of local air pollution agencies with respect to fugitive dust (such as SMAQMD Rule 403).

With respect to carbon monoxide, the project would not significantly affect local concentrations either during the construction phase or the operational phase. During the construction phase, the linear progression of the construction process itself would ensure that carbon monoxide concentrations would not accumulate in any one location such that exceedances would be likely to occur due to construction equipment exhaust. Ground-disturbing installation activities along roadways could temporarily disrupt existing transportation and circulation patterns in the vicinity. Traffic flows would be affected by lane blockages or street closures leading to a temporary increase in travel times, queue times at intersections and generally and increase in congestion on available lanes and detour routes. This could incrementally and temporarily affect carbon monoxide concentrations along these routes. However, this impact would be a less than significant given the mitigation measures outlined in the traffic section of this document to reduce impacts on traffic flow and circulation. These mitigation measures would also ensure that the associated impacts on carbon monoxide concentrations would be less than significant. Also, since Sempra Communications could use directional boring techniques (rather than open trenching) to cross major roadways, local traffic patterns, and associated local carbon monoxide concentrations, could be largely unaffected by project construction.

Mitigation Measure AIR-1a: Sempra Communications would require construction contractors to implement the following construction dust abatement program:

- Water all active construction areas at least twice daily;
- Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard;
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved surfaces at construction sites; and
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Mitigation Measure AIR-1b: For subsequent activities located within the jurisdictions of SCAQMD, SDCAPCD, and ICAPCD, Sempra Communications would require construction contractors to implement measures required under SCAQMD Rule 403 (as described above in Section 4.3.1) for high wind and normal wind conditions to reduce PM-10 emissions from the

various fugitive dust sources associated with project construction, and maintain the necessary documentation that demonstrates compliance with the rule.

Mitigation Measure AIR-1c: For subsequent activities located within the jurisdiction of SJVUAPCD, construction contractors shall implement a dust-abatement program that complies with the District's Regulation VIII Control Measures to reduce the contribution of project construction to local respirable particulate matter concentrations. This program shall include the following measures:

- Water, chemical soil stabilizers/suppressants, or vegetative ground cover shall be used to control fugitive dust from all disturbed areas, including storage piles, which are not being actively used at the construction site.

- Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust from all unpaved roads on-site and all off-site unpaved access roads to the construction site.

- Applications of water or presoaking shall be performed to control fugitive dust from all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities.

- Cover and wet all materials transported off-site or require all trucks to maintain at least six feet of freeboard from the top of the container.

- Remove accumulated mud or dirt from adjacent public streets at least once every 24 hours during construction periods. (The use of dry rotary brushes is expressly prohibited, except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is also expressly forbidden.)

- Water or chemical soil stabilizers/suppressants shall be used to control fugitive dust after each addition of materials to or removal of materials from all storage piles.

Significance after Mitigation: Less than Significant.

Impact AIR-2: Emissions from construction activities could add to the regional pollutant loading of the area in air basins where air districts have set significance thresholds for both project construction and operation. (Potentially Significant)

Subsequent activities could result in emissions of ROG, NO_X, sulfur oxides, and PM-10 during the construction phase primarily from construction equipment exhaust, construction material haul trips and construction employee commute trips. Emissions from construction equipment exhaust would vary depending on the type of construction technique used. The mix of construction equipment would vary between the different types of construction: street trenching, directional boring and aerial installation. The impact of these emissions on regional air quality would

depend on the number of different construction crews operational on a given day. The total emissions from all construction crews operating on the day of maximum activity would have to be compared to the significance thresholds of the applicable air quality management district to determine the significance of construction impacts of the proposed activities. Also, as part of the project the following mitigation measures would be implemented to ensure that regional emissions of ROG, NO_X and PM-10 from project construction are maintained at a less than significant level.

Mitigation Measure AIR-2a: Sempra Communications would require its construction contractors to comply with the following requirements during project construction:

- Use of California on-road diesel fuel for all diesel-powered construction equipment;
- Use of construction equipment that is properly tuned and maintained in accordance with manufacturers' specifications;
- Use of best management construction practices to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use).
- Suspension of emissions-generating construction activities during "Stage 2" smog alerts. Stage 2 air pollution episodes occur under the California Air Pollution Emergency Episode Plan when hourly ozone concentrations reach 0.35 parts per million (CARB, 1998).

Mitigation Measure AIR-2b: To the extent feasible, Sempra Communications would employ a maximum of number work crews on any given workday, such that daily, quarterly, or yearly levels of significance for each air district shown on **Table 4.3.11** are not exceeded. This would reduce any significant impacts of construction to the regional pollutant burden to a less than significant level.

Mitigation Measure AIR-2c: For subsequent activities where implementation of Mitigation Measure AIR-2b is not feasible, Sempra Communications would require the prime construction contractor to use aqueous emulsified fuels instead of diesel fuel. CARB recently certified Lubrizol Corporation's "PuriNOx" as an alternative fuel for diesel engines and the fuel is available commercially. Based on data submitted, CARB has determined that use of PuriNOx reduces NOx emissions by 14 percent and PM-10 emissions by 63 percent.

Significance after Mitigation: Implementation of Mitigation Measures AIR-2a and -2b would reduce the impact of construction emissions to a less than significant level. In cases where Mitigation Measure AIR-2b is not feasible, even with the implementation of the Mitigation Measure AIR-2c, the residual impact of construction emissions would be significant. This would be a significant unavoidable impact of the project on air quality.

Impact AIR-3: Operational emissions associated with subsequent activities could introduce additional emissions into the area that could conflict with the applicable regional air quality plans. (Potentially Significant)

As noted earlier, subsequent activities could involve construction in areas for which ozone, PM-10 and carbon monoxide plans may have been developed. Ozone plans rely heavily on stationary source control measures while carbon monoxide plans rely primarily on mobile source control measures. PM-10 plans rely on both stationary and mobile source control measures. Construction activities would not result in any stationary source emissions. The primary source of emissions of ozone precursors, PM-10 and carbon monoxide would be mobile sources such as construction equipment and off-highway trucks. The regional air quality plans for most air districts in the project area include construction emissions in their emissions inventory that form the basis of the applicable regional air quality plans. Therefore, provided that Mitigation Measures AIR-1a, -1b, -1c, and -2a discussed under Impacts AIR-1 and -2 are implemented, the emissions from construction equipment would not be considered to conflict with the applicable regional air quality plans.

Subsequent activities could involve the installation of regeneration / OP-AMP stations. Operational emissions of ROG, NOx, and PM-10 could be generated from the operation of back-up generators at any regeneration / OP-AMP stations proposed and from maintenance related motor vehicle trips to these stations. However, motor vehicle emissions would be negligible since any regeneration / OP-AMP stations proposed would be unmanned and routine maintenance-related motor vehicle activity would amount to approximately four to five trips per week for each regeneration / OP-AMP site.

The electronic equipment at any regeneration / OP-AMP stations proposed would be powered by electricity from the utility power grid but would be supported by battery-powered back-up systems or back-up diesel generator systems installed within the buildings in which the equipment would be located. The occasional operation of these back-up, diesel-powered generators during power outages and routine maintenance activities would be the primary source of emissions during the operational phase of the project. Though this would be a temporary and periodic increase in emissions, based on their size, operational characteristics and the requirements of the local air quality management agency, these generators could be subject to several Rules and Regulations such as permit requirements, BACT standards, NSR offsets and other specific requirements for stationary internal combustion engines. Some air districts exempt emergency back-up generators from some of these requirements. To ensure that the operation of the project would be in compliance with all applicable air district rules and regulations, before construction and operation of any back-up generators, Sempra Communications would identify the rules and regulations of the local air district that would apply to the generators and ensure that the generators are constructed and operated in accordance with the requirements of those regulations. This would include checking the applicability of the permit conditions to the generator proposed to be installed and if required, obtaining air permit. Compliance with all applicable air district rules and regulations would insure that the project would not conflict with the regional air quality plans. In addition, Sempra Communications would implement the

following mitigation measures to maintain the operational emissions from the back-up generators at a less than significant level.

Mitigation Measure AIR-3a: Sempra Communications would limit the use of emergency diesel generators to back-up, nonutility electrical power generation purposes only (or for related testing and maintenance purposes) for an aggregate period not to exceed 200 hours per year as documented by an engine-hour meter or equivalent method;

Mitigation Measure AIR-3b: Use of diesel fuel with sulfur content shall not exceed 0.05 percent by weight.

Significance after Mitigation: Less than Significant.

Impact AIR-4: The project could expose sensitive receptors to substantial pollutant concentrations. (Potentially Significant)

If subsequent activities are proposed in residential areas, associated construction activities could result in exposure of sensitive receptors, such as residents, to substantial pollutant concentrations from fugitive dust emissions sources. However, as described under Impact AIR-1, Sempra Communications would implement a dust abatement program that would reduce these impacts to a less than significant level. With the implementation of the mitigation measures described under Impacts AIR-1 and AIR-3, this temporary impact would be reduced to a less than significant level.

Once operational, use of the back-up generators would not be expected to result in exposure of sensitive receptors to substantial pollutant concentrations due to the relatively small quantities of emissions that would be generated and their infrequent use. Furthermore Mitigation Measures AIR-3a and -3b further reduce this impact. Sempra Communications would ensure that the generators would be in compliance with all applicable air district rules and regulations and would sited such that the impact to any nearby sensitive receptors would be reduced. Therefore, over operational phase, the project would not expose sensitive receptors to substantial pollutant concentrations.

Mitigation Measure: Implement Mitigation Measures AIR-3a and -3b.

Significance after Mitigation: Less than Significant.

Impact AIR-5: The project could create objectionable odors affecting a substantial number of people. (Less than significant)

The project would not include the types of emissions sources or activities that are normally associated with odor impacts.

Mitigation Measure: No mitigation is required.

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