

4.5 AIR QUALITY

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

SETTING

For purposes of air quality planning and regulation, California has been divided into air basins which represent areas with similar weather and geographic features. A brief description of each air basin is presented below. The boundaries of the air basins and the locations of the plants are shown in Figure 4.5.1.

South Coast Air Basin

The Alamitos, El Segundo, Etiwanda, Highgrove, Huntington Beach, Long Beach, Redondo and San Bernardino power plants are located within the South Coast Air Basin (SCAB). The SCAB includes all of Orange County and the metropolitan areas of Los Angeles, San Bernardino, and Riverside Counties. It is bounded on the northwest by Ventura County and on the south by San Diego County. The northern boundary runs roughly along the Angeles National Forest line north of the crest of the San Gabriel and San Bernardino Mountains. The eastern border runs north-south through the San Bernardino and San Jacinto Mountains, and incorporates the Banning Pass area, which until recently was included in the Southeast Desert Air Basin. The remaining boundary line is the entire shoreline of Los Angeles and Orange Counties.

South Central Coast Air Basin

The Ellwood Energy Support Facility, and the Mandalay and Ormond Beach power plants are located in the southern zone of the South Central Coast Air Basin (SCCAB). The SCCAB includes San Luis Obispo, Santa Barbara, and Ventura Counties. The southern zone of this air basin includes Ventura County, the Santa Barbara channel with its offshore oil and gas

INSERT FIGURE 4.5.1: Air Basins Where Southern California Edison Company Facilities are Located

production activities, and the southern central coastal strip of Santa Barbara County. San Luis Obispo County and that portion of Santa Barbara County north of the Santa Ynez Mountains is called the northern zone of the SCCAB.

Mojave Desert Air Basin

The Cool Water power plant is located in a new air basin, the Mojave Desert Air Basin (MDAB), which was recently created from part of the Southeast Desert Air Basin (SEDAB) in accordance with Assembly Bill 421 (1995). The California Air Resources Board recently adopted the new air basin boundaries, which went into effect in 1996. The MDAB consists of the former SEDAB portions of Kern, Los Angeles, and San Bernardino Counties (in general, the parts of those counties that lie east of the Sierra Nevada and the Tehachapi Mountains, and north of the San Gabriel and San Bernardino Mountains), plus that part of Riverside County lying east of a northwest-southeast trending line that joins the ridge lines of the Little San Bernardino Mountains and the Chuckwalla Mountains.

EXISTING AIR QUALITY AND AIR QUALITY TRENDS

Federal

The U.S. Environmental Protection Agency (EPA) has set national ambient air quality standards (NAAQS) for ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, 10-micron particulate matter (PM10), and airborne lead. An area where the NAAQS for a pollutant is exceeded more than 3 times in 3 years can be considered a nonattainment area subject to planning and pollution control requirements that are more stringent than normal requirements. The Clean Air Act Amendments of 1990 set out a classification system for nonattainment areas that established attainment dates based on the design value for the area. Under this system, areas with higher baseline readings, or design values, were given more time to achieve compliance with the federal standards.

Nonattainment classifications and compliance dates vary by pollutant. Ozone nonattainment areas were designated as marginal, moderate, serious, severe, or extreme. Marginal Ozone nonattainment areas were given 3 years after November 15, 1990, to come into attainment with the standards; moderate areas were given 6 years and serious areas were given 9 years. Severe-15 areas were required to develop plans that would bring the areas into attainment within 15 years after November 15, 1990; severe-17 areas were given 17 years. Up to 20 years was provided for areas classified as extreme.

Carbon monoxide and PM10 nonattainment areas were designated as either moderate or serious. Moderate CO areas were required to demonstrate attainment by December 31, 1995, serious CO areas were given an additional 5 years past that date. Moderate PM10 areas were required to

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

State

The California Air Resources Board (ARB) has established state ambient air quality standards to protect public health and welfare. Standards have been set for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, PM10, airborne lead, hydrogen sulfide, and vinyl chloride, at levels designed to protect the most sensitive members of the population, particularly children, the elderly, and people who suffer from lung or heart diseases. The ARB carries out control program oversight activities, while local air pollution control districts have primary responsibility for air quality planning and enforcement. The ARB designates the attainment status of areas with respect to the state air quality standards, based on criteria adopted by the ARB and contained in Title 17 of the California Code of Regulations.

State and national air quality standards alike consist of two parts: an allowable concentration of a pollutant and an averaging time over which the concentration is to be measured. The allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (e.g., one hour), or to a relatively lower average concentration over a longer period (e.g., 8 hours, 24 hours, or 1 month). For some pollutants, there is more than one air quality standard, reflecting both its short-term and long-term effects.

Table 4.5.1 presents the California and national ambient air quality standards for selected pollutants, and Table 4.5.2 presents the attainment status of the three air basins.

There are many potentially dangerous substances present in the ambient air, but only a very few are present in sufficient quantities to be of immediate concern. Pollutants considered to be sufficiently hazardous to health to warrant the establishment of air quality standards by the federal or state government are called criteria pollutants. These pollutants are photochemical oxidants (generally measured as ozone), nitrogen dioxide, carbon monoxide, sulfur dioxide, suspended sulfates and fine particulates.

Ozone

Photochemical oxidants, generally measured as ozone (O₃), are an end product of complex reactions between reactive organic compounds (ROC) or non-methane hydrocarbons (NMHC) and oxides of nitrogen (NO_x) in the presence of intense ultraviolet radiation. ROC and NO_x emissions from millions of vehicles and stationary sources, in combination with daytime wind flow patterns, mountain barriers, a persistent temperature inversion, and intense sunlight, result

TABLE 4.5.1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

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

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

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

/c/ ppm = parts per million by volume; µg/m³ = micrograms per cubic meter.

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

NA: Not Applicable.

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

TABLE 4.5.2: AIR BASIN ATTAINMENT DESIGNATIONS

South Coast Air Basin

<u>Pollutant</u>	<u>National</u>	<u>State</u>
Ozone	Nonattainment	Nonattainment
Carbon Monoxide	Nonattainment	Attainment/a/ Attainment
Sulfur Dioxide	Attainment	Attainment
Particulate Matter (PM-10)	Nonattainment	Nonattainment

South Central Coast Air Basin

<u>Pollutant</u>	<u>National</u>	<u>State</u>
Ozone	Attainment /b/	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Particulate Matter (PM-10)	Unclassified	Nonattainment

Mojave Desert Air Basin

<u>Pollutant</u>	<u>National</u>	<u>State</u>
Ozone	Nonattainment/c/	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Unclassified	Attainment
Particulate Matter (PM-10)	Attainment/Unclassified/d/	Nonattainment

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- /a/ The SCAB portion of Los Angeles County is nonattainment; the remainder of the basin is attainment.
 - /b/ San Luis Obispo County is attainment; the remainder of the basin is nonattainment.
 - /c/ Kern County, Los Angeles County, and the Western portion of San Bernardino County are nonattainment; the remainder of the basin is attainment.
 - /d/ The portion of the Basin within San Bernardino County has been designated nonattainment.

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

in high ozone concentrations. These compounds, referred to as smog, cause a marked reduction in visibility. Ozone irritates the nose and throat and causes chest constriction, and also damages materials such as rubber and textiles. Table 4.5.3 shows California and federal air quality standards for ozone, and maximum levels recorded in the three air basins in the period 1991-1995.

South Coast Air Basin. Maximum ozone concentrations in the SCAB usually are recorded during the summer months. The data from Table 4.5.3 shows that, typically, the state ozone air quality standard is exceeded over half the days in the year in the SCAB, and the highest levels in the basin are recorded in the inland region. Peak ozone levels have gradually declined in the SCAB over the last 15 years, despite significant population growth in the region. The frequency of violations, however, has dropped at a slower rate over the last several years after a substantial drop in the late 1970s and early 1980s. The SCAB is classified as an extreme nonattainment area for ozone for purposes of state and federal air quality planning.

South Central Coast Air Basin. The data for the SCCAB indicates a recent increase in the number of exceedances of the state and federal standards for ozone. Under the federal standards for ozone, Santa Barbara County is classified as moderate and Ventura County is classified as severe-15 nonattainment. All other areas of the SCCAB are unclassified or classified as attainment for ozone. For purposes of state air quality planning, Santa Barbara and Ventura Counties are classified as serious and severe nonattainment areas for ozone, respectively, while San Luis Obispo County is classified as a moderate nonattainment area for ozone.

Mojave Desert Air Basin. Ozone is a problematic air contaminant in the MDAB, because a significant portion of the ozone (and ozone precursors) in the basin is transported from the heavily populated SCAB to the west (ENTRIX, 1996). Maximum ozone concentrations in both the SCAB and the MDAB usually are recorded during summer months. Historically in the MDAB, maximum ozone concentrations have been measured at the Hesperia monitoring station (near Cajon Pass). This station is close to the MDAB boundary with the SCAB, where readings would be expected to be higher than in other areas in the MDAB.

The data from Table 4.5.3 show that state and federal ozone air quality standards are exceeded approximately one-third to one-half the days in the year. The maximum hourly concentrations have generally declined slightly since 1973. There is not enough data to indicate whether the increase in 1995 signifies a reversal of this trend. Under state standards, the MDAB is classified as a severe nonattainment area for ozone. Under the federal standards, Victorville is a severe-17 nonattainment area and all other areas in the MDAB are unclassified or attainment.

TABLE 4.5.3: OZONE LEVELS, 1991-1995

South Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Average, Coastal Region/a/	0.26	0.26	0.19	0.25	0.18
Highest 1-Hr Average, Inland Region/b/	0.32	0.30	0.28	0.30	0.26
Highest 1-Hr Average, Entire Basin	0.32	0.30	0.28	0.30	0.26
Number of Days Exceeding, Entire Basin/c/					
State Standard (0.09 ppm, 1-hour)	183	191	185	165	153
Federal Standard (0.12 ppm, 1-hour)	130	143	124	118	98

South Central Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Average	0.17	0.15	0.15	0.16	0.17
Number of Days Exceeding/c/					
State Standard (0.09 ppm, 1-hour)	111	73	63	90	95
Federal Standard (0.12 ppm, 1-hour)	35	12	14	17	25

Mojave Desert Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Average	0.24	0.23	0.20	0.19	0.24
Number of Days Exceeding/c/					
State Standard (0.09 ppm, 1-hour)	132	148	129	137	109
Federal Standard (0.12 ppm, 1-hour)	67	75	66	77	35

/a/ NSR Trading Zone 1, South Coast AQMD Rule 1303.

/b/ NSR Trading Zone 2, South Coast AQMS, Rule 1303.

/c/ Number of days the standard was exceeded at one or more of the air monitoring stations in the basin.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1991, 1992 1993, 1994, 1995.*

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is formed primarily in the atmosphere from a reaction between nitric oxide (NO) and oxygen or ozone. Nitric oxide is formed during high-temperature combustion processes when the nitrogen and oxygen in the combustion air combined. Although NO is much less harmful than NO₂, it can be converted to NO₂ in the atmosphere within a matter of hours, or even minutes under certain conditions.

NO₂ acts as an acute irritant and has been observed to cause some increases in bronchitis. Although neither NO nor NO₂ causes direct damage to materials, NO₂ can react with moisture in the atmosphere to form nitric acid, a component of acid deposition. NO₂ is a pollutant of concern mainly because of its participation in the photochemical reactions that form smog. Table 4.5.4 shows that state and federal air quality standards for NO₂ annual maximum one-hour NO₂ level, and highest annual average NO₂ recorded in the three air basins in the period 1991-1995.

South Coast Air Basin. The NO₂ trends indicate a steady decline over the last several years in maximum one-hour readings, number of violations, and maximum annual average concentrations. The basin is a nonattainment area for NO₂ for purposes of state and federal air quality planning. Although the federal NO₂ standard has not been exceeded for four years, EPA has not formally changed the area's designation.

South Central Coast Air Basin. NO₂ concentrations have been below the state and federal standards for several years, and the basin is in unclassified/attainment status with respect to federal standards. The basin is also in attainment for purposes of the California standards. The state one-hour standard has not been exceeded since 1979, and the federal standard has not been exceeded in the past five years.

Mojave Desert Air Basin. The data from Table 4.5.4 show that the annual average NO₂ concentrations have been within the federal standards for many years. The highest annual average concentration has remained nearly constant during this period.

The maximum hourly NO₂ readings between 1991 and 1993 were obtained at Trona, a desert location near the northern border of San Bernardino County. In 1994 and 1995, the maximum hourly readings were obtained at Barstow and Lancaster, to the south; these readings are significantly lower than the 1993-1993 values monitored at Trona. The highest hourly value monitored at Trona in 1994 or 1995 was 0.06 ppm.

It is impossible to identify any single cause for the variation in the maximum hourly NO₂ levels. Although the hourly concentrations were highest at Trona between 1991 and 1993, the basinwide maximum annual average reading was not obtained at Trona during that period. In 1992 and 1993, the annual average concentrations monitored at Trona were 50% or less of the highest

TABLE 4.5.4: NITROGEN DIOXIDE LEVELS, 1991-1995

South Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Average	0.38	0.19	0.26	0.25	0.24
Highest Annual Average	0.055	0.051	0.050	0.050	0.047
Number of Days Exceeding, Entire Basin/a/					
State Standard (0.25 ppm, 1-hour)	9	0	1	0	0
Exceeds Federal Standard (0.053 ppm, annual average)	Y	N	N	N	N

South Central Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Average	0.16	0.10	0.11	0.13	0.13
Highest Annual Average	0.024	0.022	0.023	0.025	0.025
Number of Days Exceeding, Entire Basin/a/					
State Standard (0.25 ppm, 1-hour)	0	0	0	0	0
Exceeds Federal Standard (0.053 ppm, annual average)	N	N	N	N	N

Mojave Desert Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Average	0.25	0.24	0.36	0.14	0.14
Highest Annual Average	0.028	0.026	0.026	0.027	0.024
Number of Days Exceeding, Entire Basin/a/					
State Standard (0.25 ppm, 1-hour)	0	0	0	0	0
Exceeds Federal Standard (0.053 ppm, annual average)	N	N	N	N	N

/a/ Number of days the standard was exceeded at one or more of the air monitoring stations in the basin.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1991, 1992 1993, 1994, 1995.*

annual average monitored in the basin. Because of this inconsistency between the short- and long-term maxima and the year-to-year variation in the location of the hourly maximum levels, the trend in the maximum hourly concentrations cannot be explained by any long-term emission trend. The high concentrations may be due to any or all of the following: (1) transport from the SCAB or San Joaquin Valley Air Basin (SJVAB); (2) increased transport from growing urban areas in the southern part of the MDAB; and (3) local production of NO₂.

The Trona station at which the high hourly values were monitored is located next to a large mineral processing facility with two coal-fired boilers. The high values were monitored during the winter and spring months. Local production of NO₂ seems unlikely because most NO_x sources emit 90-95% of their NO_x as NO and only small fractions as NO₂. NO is converted to NO₂ through atmospheric reactions that occur over periods of hours. There is some small amount of nighttime conversion of NO to NO₂, but the fast photochemical reactions for this conversion occur during daytime hours. These photochemical reactions are less significant during the winter months during which the maximum hourly concentrations occurred at Trona. Additional evidence that argues against the influence of local sources is the fact that the levels monitored for the hours before and after the 1993 hourly maximum reading of 0.36 ppm (monitored on May 12, 1993) were 0.02 ppm and 0.04 ppm, respectively.

A single violation of the state NO₂ standard was recorded in the MDAB in 1993; otherwise the MDAB has been in attainment since 1981. Under the federal standards, the basin is in unclassified/attainment status, and the basin is in attainment for purposes of the California standards.

Carbon Monoxide

Carbon monoxide is a product of inefficient combustion, principally from automobiles and other mobile sources of pollution. In many areas of California, CO emissions from sources such as wood-burning stoves and fireplaces can also be measurable contributors during cold-weather months. Industrial sources of pollution generally contribute less than 10% of ambient CO levels. Peak CO levels occur typically during winter months, because of a combination of seasonal contributions from home heating devices and stagnant weather conditions.

CO reduces the oxygen-carrying capacity of the blood and in high concentrations can cause death. At lower concentrations, exposed people experience dizziness and headaches.

The highest 1- and 8-hour averages, along with the number of days exceeding the state and federal 1- and 8-hour standards, for the three air basins are presented in Table 4.5.5.

South Coast Air Basin. As can be seen in Table 4.5.5, the 8-hour CO levels in the SCAB are roughly two times the state and federal standards. It appears that the 8-hour averages are slightly

TABLE 4.5.5: CARBON MONOXIDE LEVELS, 1991-1995

South Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 8-Hr Average	17.4	18.8	14.6	16.1	13.9
Highest 1-Hr Average	30	28	21	25	17
Number of Days Exceeding, Entire Basin/a/					
State Standard (20 ppm, 1-hour)	5	6	1	1	0
State Standard (9.0 ppm, 8-hour)	49	36	26	24	19
Federal Standard (35 ppm, 1-hour)	0	0	0	0	0
Federal Standard (9 ppm, 8-hour)	44	31	19	22	15

South Central Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 8-Hr Average	6.4	5.9	5.2	6.5	6.0
Highest 1-Hr Average	9	12	9	11	9
Number of Days Exceeding, Entire Basin/a/					
State Standard (20 ppm, 1-hour)	0	0	0	0	0
State Standard (9.0 ppm, 8-hour)	0	0	0	0	0
Federal Standard (35 ppm, 1-hour)	0	0	0	0	0
Federal Standard (9 ppm, 8-hour)	0	0	0	0	0

Mojave Desert Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 8-Hr Average	7.1	5.4	5.9	5.8	5.0
Highest 1-Hr Average	10	9	8	9	8
Number of Days Exceeding, Entire Basin/a/					
State Standard (20 ppm, 1-hour)	0	0	0	0	0
State Standard (9.0 ppm, 8-hour)	0	0	0	0	0
Federal Standard (35 ppm, 1-hour)	0	0	0	0	0
Federal Standard (9 ppm, 8-hour)	0	0	0	0	0

/a/ Number of days the standard was exceeded at one or more of the air monitoring stations in the basin.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1991, 1992 1993, 1994, 1995.*

trending downward. The one-hour average has generally trended downward in the past five years, and there were no violations of the state or federal one-hour standards in 1995.

The SCAB is classified as a serious nonattainment area for CO for purposes of state and federal air quality planning.

South Central Coast Air Basin. The data from Table 4.5.5 show that CO concentrations have been below the state and federal standards for several years. The basin is in attainment with the state and federal air quality standards. The basin is considered an attainment area for CO for purposes of state and federal air quality planning.

Mojave Desert Air Basin. The data from Table 4.5.5 show that there have been no exceedances of any state or federal air quality standards for CO in the past five years. The MDAB is considered an attainment area for CO for purposes of state and federal air quality planning.

Sulfur Dioxide

Sulfur Dioxide (SO₂) is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Because of the complexity of the chemical reactions that convert SO₂ to other compounds (such as sulfates), peak concentrations of SO₂ occur at different times of the year in different parts of the state, depending on local fuel characteristics, weather, and topography.

SO₂ can cause bronchioconstriction and may aggravate respiratory diseases. In moist environments, SO₂ may combine with water to form sulfuric acid, a component of acid deposition. Table 4.5.6 shows the highest 1-, 24-, and annual averages and the number of state and federal exceedances for the past five years.

South Coast Air Basin. As can be seen in Table 4.5.6, there have been no exceedances of the state or federal standards for the past five years. The SCAB is considered to be in attainment with the state and federal standards.

South Central Coast Air Basin. The data from Table 4.5.6 show that SO₂ levels in the SCCAB have been well within the federal air quality standards. The most recent violations of the more stringent state standard were in 1993. The SCCAB is considered to be in attainment with the state and federal standards.

Mojave Desert Air Basin. In the past five years, neither of the state or federal standards have been exceeded. The MDAB is considered to be in attainment of the state and federal SO₂ standards.

TABLE 4.5.6: SULFUR DIOXIDE LEVELS, 1991-1995

South Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Reading	0.14	0.15	0.08	0.04	0.14
Highest 24-Hour Average	0.018	0.035	0.014	0.012	0.018
Annual Average	0.003	0.002	0.001	0.001	0.001
Number of Days Exceeding, Entire Basin/a/					
State Standard (0.04 ppm, 24-hour)	0	0	0	0	0
State Standard (0.25 ppm, 1-hour)	0	0	0	0	0
Federal Standard (0.14 ppm, 24-hour)	0	0	0	0	0
Federal Standard (0.03 ppm, Ann. Avg.)	0	0	0	0	0

South Central Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Reading	0.14	0.17	0.57	0.10	0.25
Highest 24-Hour Average	0.023	0.023	0.046	0.010	0.038
Annual Average	0.001	0.000	0.001	0.000	0.000
Number of Days Exceeding, Entire Basin/a/					
State Standard (0.04 ppm, 24-hour)	0	0	1	0	0
State Standard (0.25 ppm, 1-hour)	0	0	1	0	0
Federal Standard (0.14 ppm, 24-hour)	0	0	0	0	0
Federal Standard (0.03 ppm, Ann. Avg.)	0	0	0	0	0

Mojave Desert Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 1-Hr Reading	0.03	0.03	0.03	0.07	0.02
Highest 24-Hour Average	0.013	0.013	0.010	0.010	0.010
Annual Average	0.003	0.001	0.001	0.001	0.001
Number of Days Exceeding, Entire Basin/a/					
State Standard (0.04 ppm, 24-hour)	0	0	0	0	0
State Standard (0.25 ppm, 1-hour)	0	0	0	0	0
Federal Standard (0.14 ppm, 24-hour)	0	0	0	0	0
Federal Standard (0.03 ppm, Ann. Avg.)	0	0	0	0	0

/a/ Number of days the standard was exceeded at one or more of the air monitoring stations in the basin.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1991, 1992 1993, 1994, 1995.*

Suspended Sulfates

Sulfur dioxide is formed through the oxidation of elemental sulfur; suspended sulfates are the product of further oxidation of sulfur dioxide. In some parts of the state, elevated levels can also be due to natural causes, such as wind-blown dust and sea salt spray. There is no federal ambient air quality standard for sulfates. Suspended sulfates contribute to overall particulate concentrations in ambient air which, if high enough, are suspected to be a cause of premature death in individuals with pre-existing respiratory disease. Table 4.5.7 shows the highest 24-hour average and number of days exceeding the state standard for the three air basins for the past five years.

South Coast Air Basin. Table 4.5.7 shows the California air quality standard for suspended sulfates and the maximum levels recorded in the SCAB during the period 1991-1995. With one exception, maximum 24-hour sulfate levels have met the state standard since 1991.

South Central Coast Air Basin. Because of the long history of low sulfate levels in the basin, measurement of suspended sulfates in the SCCAB was discontinued after 1990. The basin is considered to be in attainment of the ambient sulfate standards for state air quality planning purposes.

Mojave Desert Air Basin. The violations of the state standards recorded in 1991 and 1994 all occurred at Trona. Likely sources of particulates and particulate sulfate near Trona include Searles Lake (a highly saline and partially dry lake bed used as a source of brine for chemical manufacturing), a chemical processing plant (North American Chemical Company), which formerly used a coal- and coke-fired boiler. Since total particulate sulfate was not monitored at China Lake during that period, a direct comparison of levels at Trona and China Lake cannot be made. However, a comparison of monitored levels of sulfates less than 10 microns in size indicates that the levels at China Lake were well below levels monitored at Trona.

The Searles Valley Planning Area was created to encompass the Searles Lake-Trona area in northern San Bernardino County where the violations of the state standard were recorded; because of the recorded violations, that area of the MDAB is designated a nonattainment area. The rest of the MDAB is considered to be in attainment for state air quality planning purposes.

Fine Particulate (PM10)

Particulate matter in the air is composed of a combination of windblown fugitive dust; particles emitted from combustion sources (usually carbon particles); and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and oxides of nitrogen. In 1984, the ARB adopted standards for fine particulate (PM10 - particulate matter less than 10 microns in size), and phased out the total suspended particulate (TSP) standards used up to that time. PM10 standards were substituted for TSP standards because PM10 corresponds to the

TABLE 4.5.7: SUSPENDED SULFATE LEVELS, 1991-1995

South Coast Air Basin/a/

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 24-Hour Average	24.7	22.6	20.5	26.8	22.3
Number of Days Exceeding, Entire Basin/b/					
State Standard (25 µg/m ³ , 24-hour)	0	0	0	1	0

South Central Coast Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 24-Hour Average	N/A	N/A	N/A	N/A	N/A
Number of Days Exceeding, Entire Basin/b/					
State Standard (25 µg/m ³ , 24-hour)	N/A	N/A	N/A	N/A	N/A

Mojave Desert Air Basin

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 24-Hour Average	32.5	18.6	14.0	50.1	13.0
Number of Days Exceeding, Entire Basin/b/					
State Standard (25 µg/m ³ , 24-hour)	2	0	0	3	0

/a/ Concentrations are in micrograms per cubic meter.

/b/ Number of days the standard was exceeded at one or more of the air monitoring stations in the basin.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1991, 1992 1993, 1994, 1995.*

size range of inhalable particulate related to human health. In 1987, EPA also replaced national TSP standards with PM10 standards.

Particulates are a public health and welfare concern for several reasons. Particulates may be intrinsically toxic because of their inherent chemical and/or physical characteristics. Particulate matter may interfere with one or more of the mechanisms that normally clear the respiratory tract. Finally, fine particulates, which are easily carried deep into the lungs, may act as carriers of absorbed toxic substances. Thus elevated particulate concentrations may exacerbate pre-existing respiratory diseases such as bronchitis. Particulate matter, especially fine particulate,

TABLE 4.5.8: PM10 LEVELS, 1991-1995

South Coast Air Basin/a/

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 24-Hour Average	179	649	231	161	219
Annual Geometric Mean/b/	65.5	62.4	58.0	55.9	51.8
Annual Arithmetic Mean/b/	76.0	78.9	72.4	65.7	69.0
Number of Days Exceeding, Entire Basin/c/					
State Standard (50 µg/m3, 24-hour)	56	51	61	58	51
Federal Standard (150 µg/m3, 24-hour)	4	4	4	1	6

South Central Coast Air Basin/a/

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 24-Hour Average	119	135	141	139	129
Annual Geometric Mean/b/	65.5	62.4	58.0	55.9	36.8
Annual Arithmetic Mean/b/	76.0	78.9	72.4	65.7	39.9
Number of Days Exceeding, Entire Basin/c/					
State Standard (50 µg/m3, 24-hour)	56	51	61	58	18
Federal Standard (150 µg/m3, 24-hour)	4	4	4	1	0

Mojave Desert Air Basin/a/

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Highest 24-Hour Average	780	242	79	140	235
Annual Geometric Mean/b/	41.0	35.6	36.0	36.4	22.6
Annual Arithmetic Mean/b/	56.8	43.2	40.2	42.3	46.0
Number of Days Exceeding, Entire Basin/c/					
State Standard (50 µg/m3, 24-hour)	39	28	39	27	10
Federal Standard (150 µg/m3, 24-hour)	7	0	0	0	1

/a/ Concentrations are in terms of microgram per cubic meter.

/b/ No basinwide summary available. The annual means for each year are based on the station with the highest annual mean in the basin.

/c/ Number of days the standard was exceeded at one or more of the monitoring stations in the basin.

SOURCE: California Air Resources Board, *Air Quality Data Summary, 1991, 1992 1993, 1994, 1995.*

also interferes with visibility. Table 4.5.8 shows the highest 24-hour average, the annual geometric mean, the annual arithmetic mean, and the number of days exceeding the state and federal standards for the past five years for the three air basins.

South Coast Air Basin. As can be seen in Table 4.5.8, the 24-hour PM10 levels are four to ten times the state standard. It should be noted that, because PM10 is measured only every six days at each monitoring location, the actual number of readings in excess of standards may be approximately six times the reported values.

South Central Coast Air Basin. The SCCAB is unclassified or in attainment with the federal PM10 air quality standards. The state 24-hour PM10 standard is exceeded approximately 15-35 days per year, while the annual state standard (geometric mean) has been exceeded each year, with the exception of 1995. Because PM10 is measured only every six days at each monitoring location, however, the actual number of excesses may be approximately six times the reported values. With respect to the state PM10 standard, the SCCAB is considered to be in nonattainment.

Mojave Desert Air Basin. The data in Table 4.5.8 show that the state standard has been exceeded approximately 30 days per year, while the federal standard has been exceeded only once in the past four years. It should be noted that, because PM10 is measured only every six days at each monitoring location, the actual number of exceedances may be approximately six times the reported values.

Air Quality Regulatory Context

Federal

EPA has responsibility for enforcing, on a national basis, the requirements of many of the country's environmental and hazardous waste laws. California is under the jurisdiction of EPA Region IX, with offices in San Francisco. Region IX is responsible for the local administration of EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. EPA's responsibility in the state air pollution control programs focuses principally on reviewing submittals for the State Implementation Plan (SIP). The SIP is required by the federal Clean Air Act to demonstrate how all areas of the state will meet the national ambient air quality standards within the federally specified deadlines (42 USC §§ 7409, 7411).

Federal Prevention of Significant Deterioration Program

EPA has promulgated Prevention of Significant Deterioration (PSD) regulations for areas that have achieved the national ambient air quality standards (attainment areas). The PSD program allows new sources to be constructed or existing sources to be modified, while preserving the existing ambient air quality levels, protecting public health and welfare, and protecting Class I areas (e.g., national parks and wilderness areas).

The PSD requirements apply on a pollutant-specific basis to any proposal that is a new major stationary source or a major modification to an existing stationary source. (These terms are defined in the federal regulations at 40 CFR 52.21). This determination is based on evaluating the emissions changes associated with the proposal.

The five principal areas of the PSD program are listed below.

- Emissions must be controlled using Best Available Control Technology (BACT).
- Air quality impacts in combination with other increment-consuming sources must not exceed maximum allowable incremental increases for NO₂, SO₂, and PM₁₀.
- Air quality impacts of all sources in the area plus ambient pollutant background levels cannot exceed the NAAQS.
- Pre- and/or post-construction air quality monitoring may be required.
- The air quality impacts on soils, vegetation, and nearby PSD Class I areas (national parks and wilderness areas) must be evaluated.

The SCAQMD has applied for delegation of authority to implement the PSD program; however, this request has not yet been approved. The EPA expects to issue the PSD delegation to the SCAQMD in 1996. Until the SCAQMD receives delegation, the PSD program will continue to be conducted by the EPA.

The Santa Barbara County APCD in the SCCAB has received delegation to conduct its own PSD program. Because the Ventura Country APCD and Mojave Desert AQMD PSD programs have not received EPA approval, facilities subject to PSD requirements in these districts are required to obtain PSD approvals to construct from the EPA.

Other Federal Regulatory Requirements

New Source Performance Standards. The New Source Performance Standards (NSPS) are source-specified federal regulations limiting the allowable emissions of criteria pollutants (i.e., those that have an NAAQS and their precursors) (40 CFR 60). These regulations apply to certain sources, depending on the equipment size; process rate; and/or the date of construction, modification, or reconstruction of the affected facility. Record keeping, reporting, and monitoring are usually required for the regulated pollutant from each subject source; the reports must be regularly submitted to the reviewing agency. As with the PSD program, this program has been delegated to various states and local districts. In most cases, states or local districts are responsible for determining compliance with the NSPS.

Compliance with the standards is generally enforced as part of the permitting process. For existing equipment that has been previously permitted by the districts, the permit evaluation would have included a review of whether the NSPS are applicable. Unless the divestiture results in new installations of emissions controls or changes in existing operations or equipment that constitute a

"modification" as defined in federal regulations, this action is unlikely to cause equipment to become newly subject to NSPS. In addition, the new source review (NSR) and source-specific rules of the districts in which Edison's power plants are located generally result in more stringent requirements than the NSPS.

National Emissions Standards for Hazardous Air Pollutants. The National Emissions Standards for Hazardous Air Pollutants (NESHAPS) are source-specific or pollutant-specific regulations, limiting the allowable emissions of hazardous air pollutants from the affected sources (40 CFR 61). Unlike criteria air pollutants, hazardous air pollutants are those that do not have an NAAQS but have been identified by EPA as causing or contributing to the adverse health effects of air pollution.

Federal Clean Air Act Amendments of 1990. In November 1990, substantial revisions and updates to the federal Clean Air Act were signed into law. This complex enactment addresses a number of areas that could be relevant to the power plants affected by the proposed divestiture, such as SIP requirements for nonattainment areas setting new compliance deadlines and annual progress increments, more extensive permitting requirements, new EPA mandates and deadlines for developing rules to control air toxic emissions, and acid deposition control. Provided below is a summary of the new provisions applicable to the power plants.

Title V - Permits. This title establishes a comprehensive operating permit program for major stationary sources (42 USC § 7661 et seq.). Under the Title V program, a single permit that includes a listing of all the stationary sources, applicable regulations, and requirements is required. All air districts in California, as well as air regulatory agencies in 56 other jurisdictions (all the states, the District of Columbia, and territories), were required to develop regulations implementing the operating permit program and submit the regulations to EPA for approval by November 1993. EPA is in the process of reviewing and approving these regulations for all jurisdictions. Title V programs submitted by the Ventura and Santa Barbara County APCDs and by the Mojave Desert AQMD have received interim approval. The SCAQMD was granted interim program approval on August 29, 1996.

Title III - Hazardous Air Pollutants. This title establishes a program for regulating hazardous air pollutants from area source and industrial categories rather than concentrating on individual pollutants. For the purpose of setting standards, EPA established a list of major source categories (e.g. chemical plants, oil refineries, and steel plants). Some 250 source categories will be regulated. The regulations will apply technology-based standards rather than risk-based standards. The SCAQMD has requested delegation of the Title III program under its request for delegation of Title V Permits.

Federal Conformity Requirements. The Clean Air Act (Section 176) required EPA to promulgate rules to ensure that federal actions conform to the appropriate SIP. In 1993, EPA adopted regulations implementing Section 176 of the federal Clean Air Act, as amended (42 U.S.C. § 176).

Under the EPA “general” conformity regulations, which pertain to actions not involving transportation or transit plans for proposals (40 CFR Parts 6, 51, and 93, adopted November 15, 1993, and published at 58 FR 63214 et seq.), conformity requirements apply only to emissions impacts in areas that have been designated as “nonattainment” or “maintenance” by EPA. This was further clarified in a subsequent highway bill (National Highway System Designation Act of 1995) that modifies the applicability definition of Section 176 so that it applies only to nonattainment and maintenance areas (i.e., not attainment areas).

State

The ARB was created in 1968 by the Mulford-Carrell Air Resources Act, through the merger of two existing state agencies. ARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update as necessary the state's ambient air quality standards; to review the operations of the local air pollution control districts (APCDs); and to review and coordinate preparation of the SIP for achievement of the national ambient air quality standards (NAAQS) (Health & Safety Code [H&SC] § 39500 et seq.).

When the state's air pollution statutes were reorganized in the mid-1960s, local APCDs were required to be established in each county of the state (Health & Safety Code §§ 40000 et seq.). There are three different types of districts: county, regional, and unified. In addition, special air quality management districts (AQMDs), with more comprehensive authority over non vehicular sources as well as transportation and other regional planning responsibilities, have been established by the Legislature for several regions in California, including the SCAQMD (Health & Safety Code §§ 40400 et seq.).

In 1988, the state legislature enacted the California Clean Air Act which, similar to the federal Clean Air Act, calls for the designation of areas as either "attainment" or "nonattainment," but under the California Clean Air Act, such a designation was to be with respect to the more stringent SAAQS, not the NAAQS. 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. Current attainment/nonattainment designations for the three relevant air basins are summarized in Table 4.5.2.

The Act requires the local APCDs to attain and maintain the federal and state ambient air quality standards at the “earliest practicable date.” The Act contains several milestones for local districts and the ARB. Local districts must submit to the ARB an air quality plan defining a program to meet the required emission reduction milestones.

Air quality plans must demonstrate attainment of the state ambient air quality standards and, specifically, must result in a 5% annual reduction in emissions of nonattainment pollutants (ozone, CO, NO_x, and SO₂) and their precursors in a given district (H&SC § 40914). To meet this

requirement, a local district may adopt additional stationary source control measures or transportation control measures, revise existing source-specific or NSR rules, or expand its vehicle inspection and maintenance program (H&SC § 40918). District air quality plans specify the development and adoption of more stringent regulations to achieve the requirements of the Act. There is no immediate impact on the proposed divestiture, because the Act directly affects only local districts. However, future district regulations developed and adopted to achieve the requirements of the Act may apply to facilities affected by the proposed divestiture, and thus may affect future plans for expansion or site modifications.

Local

South Coast Air Quality Management Plan

In 1994, the SCAQMD adopted a revised Air Quality Management Plan (AQMP) to identify specific emission reduction measures to comply with the 1990 federal Clean Air Act and the 1988 California Clean Air Act. The federal Clean Air Act requires the SCAQMD to develop a federal attainment plan for ozone, a post-1996 Rate-of-Progress Plan, ozone attainment demonstrations for the Los Angeles County portion of the SEDAB (Antelope Valley) and the Riverside nonattainment area of the SEDAB (Coachella - San Jacinto Planning Area), and a PM10 SIP that incorporates best available control measures for fugitive sources.

The California Clean Air Act requires the SCAQMD to address the following in its AQMP: application of best available retrofit control technology; reduction of nonattainment pollutants and their precursors at a rate of 5% per year or, if this cannot be done, inclusion of all feasible measures and an expeditious implementation schedule; measures to achieve an average vehicle ridership during peak commute hours of 1.5 persons per vehicle by 1999; measures to ensure that no net increase in mobile source emissions occurs after 1997; measures to reduce population exposure to severe nonattainment pollutants (i.e., ozone, CO, and NO_x) according to a prescribed schedule; and a ranking of control measures by cost effectiveness and implementation priority. (ENTRIX, 1996.)

The 1994 AQMP proposes two tiers of emission reduction measures. Tier 1 is based on short- and intermediate-term measures using the application of available technology and practices between 1994 and 2005. These measures are designed to satisfy the federal Clean Air Act requirement for reasonable available control technology (RACT) and the California Clean Air Act best available retrofit control technology (BARCT) requirement.

To ultimately achieve ambient air quality standards, additional emission reductions beyond the implementation of short- and intermediate-term measures will be necessary. Thus, the AQMP also includes Tier 2 measures. These long-term measures rely on the advancement of technologies and control methods that can reasonably be expected to occur between 1994 and 2010, including further development and refinement of low- and zero-emission control technologies in addition to technological breakthroughs.

South Coast Air Quality Management District Regional Clean Air Incentives Market

The Regional Clean Air Incentives Market (RECLAIM) regulation requires subject facilities to operate under an annual facility-wide emissions cap. Each year, this cap is decreased to match air quality planning requirements. To comply with annual emissions caps, or allocations, subject facilities can decrease emissions or purchase surplus RECLAIM Trading Credits, or RTCs, from other facilities. All of Edison's power plants in the SCAQMD are subject to the RECLAIM program for NO_x emissions. RECLAIM has replaced traditional command-and-control regulations for NO_x emissions in the SCAQMD. The RECLAIM program for sulfur oxide (SO_x) emissions effectively exempts facilities that use natural gas fuel exclusively, as well as electric utility facilities owned by Edison and other utilities. Absent a rule amendment, a power plant that is sold to a new owner may become subject to the SO_x RECLAIM program upon change of ownership, if it does not burn natural gas exclusively. As the facility would no longer be owned by Edison, it may no longer qualify for the utility exemption.

When the RECLAIM program was initiated in 1993, each facility to which the program was applicable (generally, stationary sources holding permits and emitting more than four tons per year of NO_x or SO_x) received RECLAIM allocations. These allocations were calculated by determining the facility's historic use of each piece of NO_x- and/or SO_x-emitting equipment and then subtracting the emissions that were required to be reduced under adopted command-and-control rules. Allocations were established for the years 2000 and 2003; these emission levels represented full implementation of the Tier I and II control measures in the District's AQMP.

To ensure compliance with RECLAIM requirements, facilities are required to periodically report their emissions to the SCAQMD. In addition to filing electronic reports each day, facilities must certify their quarterly emissions. At the end of each compliance year, facilities are required to report their emissions and have a two-month reconciliation period to buy or sell RTCs as needed to balance their reported emissions with their allocations. To make RTCs more available, the District created a staggered compliance schedule by dividing facilities into two compliance cycles. Cycle One runs from January 1 to December 31 of each year; Cycle Two runs from July 1 to June 30. Facilities may obtain RTCs from or sell RTCs to facilities in either cycle.

The District is also divided into two RECLAIM trading zones: Zone 1 is the Coastal Zone and Zone 2 is the Inland Zone. Figure 2-49 shows the trading zones. Zone restrictions apply to trades that involve a new or relocated facility or a facility exceeding its starting allocation of RTCs. A facility in the Coastal Zone may only obtain and use RTCs that originated in the Coastal Zone. However, a facility in the Inland Zone may obtain and use RTCs from either the Coastal or Inland Zones.

Ventura County Air Pollution Control District Rules for Oxides of Nitrogen Emissions

NO_x emissions from the Ormond Beach and Mandalay power plants in Ventura County are currently regulated by Ventura County Air Pollution Control District (VCAPCD) Rule 59,

Electrical Power Generating Equipment - Oxides of Nitrogen. Although this rule formerly applied only to utility electric power generating steam boilers, owned and/or operated by a CPUC-regulated utility or municipality, Rule 59 was revised on July 15, 1997 to apply to any future owner of the Ormond Beach and Mandalay power plants. This revised rule limits NO_x emissions of electric power generating steam boilers with a rated heat input capacity of greater than three hundred (300) million BTU's per hour ; to between 0.10 and 0.33 lb/MWh, depending on the boiler heat input capacity, the generating level of the power plant, and the fuel used. NO_x emissions from smaller boilers are regulated under Rule 74.15, which limits NO_x emissions to 40 parts per million by volume (ppmv).

In accordance with state law and VCAPCD practices, upon the sale of the divested generating stations to new owners, the new owners will be reissued a new air emission permit with terms and restrictions substantially the same as those contained in the permits Edison currently holds for those stations. Given the revisions to Rule 59, the Ormond Beach and Mandalay stations will continue to be subject to the same NO_x emission limits that exist in their current permits, which limits are the same as the requirements of Rule 59.

Mojave Desert Air Quality Management District Rules for Oxides of Nitrogen Emissions

The Mojave Desert AQMD regulates NO_x emissions from electric utility boilers and combined cycle turbines through Rule 1158. This rule limits NO_x emissions at the Cool Water generating station through both unit-specific concentration limits and an aggregate NO_x emissions cap that declines from 1,516 tpy in 1996 to 1,319 tpy in 2002 and later. The MDAQMD has a proposed amendment for Rule 1158 that would make the rule applicable to any electric power generating facility, not just facilities operated by utilities. This proposed amendment could be adopted as early as September 1997 (Heaston, 1997).

Other Local Regulatory Requirements

The Santa Barbara County APCD has not adopted any electric generation equipment-specific NO_x requirements; therefore, any change in ownership of the Ellwood Energy Support Facility would not result in new or revised NO_x requirements for that facility.

SCAQMD Rule 431.2 limits the sulfur content of liquid fuel burned in the District to 0.05% by weight, except that existing supplies of higher sulfur fuel may be used until the supply is exhausted. Edison has supplies of 0.25% sulfur fuel in storage at many of the generating stations; therefore, Edison may use this higher sulfur fuel. However, liquid fuel having a sulfur content in excess of 0.05% may not be purchased, sold or offered for sale within the basin.

The Mojave Desert AQMD and the Ventura and Santa Barbara County APCD rules limit the sulfur content of liquid fuels to 0.5% by weight. However, the Edison generating units in these districts have permit conditions that limit the sulfur content of the distillate fuels burned in the

generating equipment to levels below those allowed under the rules. For example, the Santa Barbara County APCD has imposed a sulfur content limit of 0.1% on distillate fuel burned in the Ellwood turbines.

California's SIP is composed of various regional plans prepared by regional and local agencies, called Air Pollution Control Districts (APCDs) or Air Quality Management Districts (AQMDs). The 1988 California Clean Air Act also calls for the preparation of air quality plans designed to achieve the more stringent SAAQS. Thus, just as many areas in California have two sets of attainment/nonattainment designations, they also have parallel sets of air quality plans: one set to the NAAQS and one set to meet SAAQS.

The ARB is the state agency responsible for approving the air quality plans developed to meet both the NAAQS and SAAQS. The ARB also has primary responsibility for regulating mobile and area source emissions and for overseeing the activities of the APCDs and AQMDs. The ARB approves the rules and plans submitted by these local agencies before submitting them to EPA for approval under the federal Act as part of California's SIP. Edison's twelve sale plants are within the jurisdiction of the following air districts: South Coast Air Quality Management District (SCAQMD), Ventura Air Pollution Control District (VAPCD), and the Mojave Air Quality Management District (MAQMD).

APCDs and AQMDs, in addition to having primary responsibility for preparing air quality plans for the areas within their jurisdiction, are also responsible for regulating stationary sources. Stationary sources are regulated through a permitting process in which applicants must secure an Authority to Construct (ATC) and a Permit to Operate (PTO) from the applicable APCD or AQMD prior to operation of new or modified equipment that may affect air quality. Generally speaking, components of this permitting process are referred to as New Source Review (NSR). While NSR is implemented somewhat differently in each APCD and AQMD, the general procedure calls for estimating potential emissions, and, if the emissions are expected to exceed certain specified levels, the source must be equipped with certain control technologies and/or must provide emission "offsets". Stationary sources can also be subject to retrofit requirements imposed by the applicable APCD and AQMD.

Permit Conditions and Current Emissions

Alamitos

The Alamitos power plant steam boilers are permitted at 100% of their operating capacity. Unit 7, a gas turbine peaking unit, is restricted to 200 hours per year of operation. From 1993 to 1995, total emissions at this facility averaged approximately 694.4 tons per year of NO_x, 21.6 tons per year of SO₂, 37.2 tons per year of ROC, 379.0 tons per year of CO, and 63.7 tons per year of PM₁₀.

Presently, the closest air pollution-sensitive receptors to the generating station are located 300 feet west and 500 feet north of the site.

Cool Water

The Cool Water power plant steam boilers and gas turbines are permitted at 100% of their operating capacity. The combined cycle gas turbines are required to use water injection at loads in excess of approximately 30% to ensure compliance with the NO_x emissions limits contained in the applicable District prohibitory rule. From 1993 to 1995, total emissions at this facility averaged approximately 891.1 tons per year of NO_x, 15.2 tons per year of SO₂, 190.4 tons per year of ROC, 479.3 tons per year of CO, and 66.0 tons per year of PM10.

The Cool Water power plant is located in an area currently in agricultural and open space use. No air pollution-sensitive receptors are located in close proximity to the site.

El Segundo

The El Segundo power plant steam boilers are permitted at 100% of their operating capacity. From 1993 to 1995, total emissions at this facility average approximately 505.3 tons per year of NO_x, 8.3 tons per year of SO₂, 14.0 tons per year of ROC, 146.7 tons per year of CO, and 24.3 tons per year of PM10.

Presently, the closest air pollution-sensitive receptors to the generating station are located 150 feet south of the site.

Ellwood

The Ellwood Energy Support Facility peaking turbines are limited to 200 hours per year of operation except under emergency conditions. The yearly emissions of the unit from 1993 to 1995 average approximately 2.8 tons per year of NO_x, 0.0 tons per year of SO₂, 0.14 tons per year of ROC, 1.6 tons per year of CO, and 0.15 tons per year of PM10.

Presently, the closest air-pollution sensitive receptors to the generating station are a school approximately 200 feet to the east, residential areas 500 feet to the north across Highway 101, and residential areas 1,000 feet to the east and southwest.

Etiwanda

The Etiwanda power plant steam boilers are permitted at 100 percent of their operating capacity. Unit 5, a gas turbine peaking unit, is restricted to 1,300 hours per year of operation to maintain its peaking unit status under Rule 2012. From 1993 to 1995, total emissions at this facility average approximately 581.3 tons per year of NO_x, 7.7 tons per year of SO₂, 13.7 tons per year of ROC, 134.7 tons per year of CO, and 22.7 tons per year of PM10.

Surrounding land uses include heavy industrial, open space, and agricultural fields. The closest air pollution-sensitive receptors to the generating station are located approximately one-half mile directly north of the generating facility in a multi-family residential development near the intersection of Etiwanda Avenue and Arrow Highway. Other receptors are located approximately one mile to the northwest of the site, and at a San Bernardino County Jail facility approximately

one mile south of the generating facility at the intersection of Etiwanda Avenue and Fourth Street (San Bernardino Road).

Highgrove

The Highgrove power plant steam boilers are permitted at 100 percent of their operating capacity. From 1993 to 1995, total emissions at this facility average approximately 25.5 tons per year of NO_x, 0.2 tons per year of SO₂, 0.1 tons per year of ROC, 2.3 tons per year of CO, and 0.3 tons per year of PM10.

Presently, the closest air pollution-sensitive receptors to the generating station are located 1,000 feet east and southeast of the site.

Huntington Beach

The Huntington Beach power plant steam boiler Units 1 and 2 are permitted at 100 percent of their operating capacity. Units 3 and 4 have been placed on long-term standby reserve, and their permits have been surrendered. Unit 5, a gas turbine peaking unit, is restricted to 1,300 hours per year of operation to maintain its peaking unit status under Rule 2012. From 1993 to 1995, total emissions at this facility average approximately 463.7 tons per year of NO_x, 5.4 tons per year of SO₂, 10.4 tons per year of ROC, 93.7 tons per year of CO, and 15.7 tons per year of PM10.

Presently, the closest air pollution-sensitive receptors to the generating station are located 1,000 feet east and southeast of the site.

Long Beach

The Long Beach power plant combined cycle units are permitted at 100 percent of their operating capacity. However, the California Coastal Commission limits generation at the facility to 34 percent of capacity on a monthly basis. The capacity limit was imposed by the Commission staff because the staff believed that NO_x emissions at that location (along the coast at Long Beach) would contribute disproportionately to ozone formation in the SCAB. The Coastal Commission permit allows the plant to exceed the monthly capacity limit only if Edison is ordered by CPUC or another agency to operate at a higher capacity, or if a temporary emergency power demand requires such operation. Edison concurred in this permit condition in 1973. From 1993 to 1995, total emissions at this facility average approximately 117.4 tons per year of NO_x, 0.9 tons per year of SO₂, 43.0 tons per year of ROC, 103.3 tons per year of CO, and 13.7 tons per year of PM10.

This generating station is located in a highly industrialized area of the Port of Long Beach. Presently, there are no air pollution-sensitive receptors near the site.

Mandalay

The Mandalay power plant steam boilers are permitted at 100% of capacity, as long as they do not exceed the allowable emissions under the applicable NO_x prohibitory rule, Rule 59. The permit explicitly incorporates each applicable emission limit in Rule 59. A restriction on annual fuel

consumption for Unit 3, the combustion peaking turbine unit, limits the allowable annual operation of this unit. From 1993 to 1995, total emissions at this facility averaged approximately 69.2 tons per year of NO_x, 6.4 tons per year of SO₂, 9.3 tons per year of ROC, 83.7 tons per year of CO, and 14.3 tons per year of PM10.

The closest air-pollution sensitive receptors to the site are the State beaches located directly north and south of the site. The remainder of the site is bordered by the Pacific Ocean and agricultural land uses.

Ormond Beach

The Ormond Beach power plant steam boilers are permitted at 100% of capacity, as long as they do not exceed the allowable emissions under the applicable NO_x prohibitory rule, Rule 59. The permit explicitly incorporates each applicable emission limit in Rule 59. From 1993 to 1995, total emissions at this facility averaged approximately 74.0 tons per year of NO_x, 13.7 tons per year of SO₂, 23.6 tons per year of ROC, 244.3 tons per year of CO, and 40.3 tons per year of PM10.

The Ormond Beach power plant is located in an area primarily characterized by agricultural, industrial, and federal government uses. None of these land uses are considered sensitive receptors for air pollutants.

Redondo

The Redondo power plant steam boiler Units 5, 6, 7, and 8 are permitted at 100 percent of their capacity. Plant 1, consisting of Units 1 through 4, has been placed on long-term standby reserve and no longer has an air permit. From 1993 to 1995, total emissions at this facility average approximately 282.1 tons per year of NO_x, 12.2 tons per year of SO₂, 20.3 tons per year of ROC, 214.7 tons per year of CO, and 35.8 tons per year of PM10.

Presently, the closest air pollution-sensitive receptors to the generating station are located 50 feet north of the site.

San Bernardino

The San Bernardino power plant steam boilers are permitted at 100 percent of their operating capacity. From 1993 to 1995, total emissions at this facility average approximately 17.2 tons per year of NO_x, 0.15 tons per year of SO₂, 0.42 tons per year of ROC, 2.80 tons per year of CO, and 0.48 tons per year of PM10.

Presently, the closest air pollution-sensitive receptors to the generating station are located less than 1,000 feet west of the site.

CHECKLIST ISSUES

a) Violation of Air Quality Standards

Regional Issues

As discussed in the setting, three air basins are affected by emissions from the power plants proposed for divestiture by Edison. Each of the air basins is nonattainment for the national and state ozone standards (see Table 4.5.2). Considerable effort is expended in the region to meet air quality standards, and in the case of electric power plants, controlling NO_x emission sources (a precursor to ozone formation) to reduce ozone levels is the primary focus of the air districts. The South Coast Air Quality Management District's RECLAIM program will continue to control NO_x emissions after restructuring, with or without divestiture, since it constitutes a declining annual cap on the mass emissions from the power plant that is not altered by a change in the plants' ownership. RECLAIM establishes a District-wide declining cap that allows a facility to exceed its individual allotted emissions cap, but only by obtaining emission rights from other RECLAIM emission sources in the air basin, such that there is no net effect in the basin. The Mojave Desert Air Quality Management District's power plant NO_x rule also includes a declining, mass emission limit on the Cool Water plant's NO_x emissions designed to meet federal reasonable further progress requirements. Under the Ventura County Air Pollution Control District's NO_x rule, the affected plants (Mandalay and Ormond Beach) already have been required to install Selective Catalytic Reduction on all of the generating unit boilers, and accordingly already achieve lowest emission rates required by federal regulation. The only plant located in the Santa Barbara APCD, the Elwood combustion turbine facility, is limited by permit to no more than 200 hours of operation per year.

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

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

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

This was also pointed out by the California Energy Commission (CEC) in early consultation for this Initial Study. The CEC concluded that it is not possible to predict the change in generation that divestiture may cause. (CEC, 1997)

Although it is possible for Edison to operate each of the twelve plants to be divested at levels higher than past operating levels now and after restructuring, a new owner could have the tendency to operate the power plants at a higher level than Edison would be expected to operate the plant after restructuring if the facility is not divested. This could result in increased levels of ozone, or an increase in days exceeding the ozone standard. Although this is a potential negative impact of divestiture, it is considered less than significant for the following reasons:

- Even if divestiture results in increased emissions, as compared to those which would occur if Edison retained the plants, the emissions would be within permitted levels and consistent with rules for power plant emissions, so that no significant impacts would result. Additionally, stationary sources subject to permit authority and complying with all applicable air district regulations generally will not be considered to have a significant air quality impact.
- Increased operations do not necessarily mean increased emissions. If new owners operate at higher levels than utilities would under restructuring, they would likely be operating in a more constant mode. As such, they may have fewer shut downs and start ups, which have substantially higher emission rates than continuous operations.
- For a number of reasons, it appears that emissions will decline in the future, as a result of restructuring, more stringent emission caps for NO_x, and on-going air quality improvement efforts. In some Districts, even if operations increase for these plants, future air pollutant emissions could be less than historical levels (prior to implementation of pollution abatement equipment) or current levels, because controls would be needed in the South Coast Air Basin and the Mojave Desert Air Basin to comply with the stricter future NO_x emission caps; or Reclaim Trading Credits would be purchased. In the South Central Coast Air Basin, the

power plants have already been required to install the Best Available Retrofit Control Technology (BARCT).

- Air district rules are being modified to apply to non-utility owners, so that the stricter emission and concentration limits in these rules will apply to the new owners. Ventura County Air Pollution Control District revised Rule 59 on July 15th so that it would apply to non-utilities. The Mojave District AQMD has drafted proposed amendments to Rule 1158 that, if adopted, would apply to non-utilities. In the Santa Barbara APCD and the South Coast AQMD, no similar rule changes are necessary since the rules of those districts already apply to non-utilities.
- Federal and state air pollution control laws provide for the establishment of national and state ambient air quality standards. These standards are set at levels intended to protect the public health and welfare. Areas that do not meet these standards must prepare and implement air quality plans designed to achieve the standards within time periods specified by law. These plans include estimates of future emissions from source categories in the area, as well as estimates of feasible emission reductions for those source categories.
- Existing California law requires that areas that do not meet the state air quality standard for ozone and other pollutants update their air quality plans every three years. As part of the plan update process, emission control measures can be revised or added as necessary to meet the changed conditions. The Ventura County Air Pollution Control District (VCAPCD) has indicated that the plan revision process is the method they will use to deal with any increases in emission that would occur as a result of divestiture, since under state law, air pollution control districts are prohibited from adding any new requirements to a permit that undergoes a change of ownership only (VCAPCD, 1997; Baldwin, 1997).
- Air quality plans are implemented by air district adoption of rules and regulations that require specific levels of emission controls from existing facilities. These rules are designed to achieve, to the extent feasible, the emission reductions estimated in the air quality plan.

Local Issues

With regard to significance thresholds for project emissions, early analysis used the South Coast Air Quality Management District Guidelines to identify a project as having a significant air quality impact if the project would result in emissions of more than 55 lbs/day of NO_x or ROC; 150 lbs/day of SO_x or PM₁₀, or 550 lbs/day of CO. Within the Ventura Air Pollution Control District, a project contributing to 25 lbs/day of either NO_x or ROC was considered to have a significant impact. As a result of subsequent consultation with the air districts, the preparers of this Initial Study no longer consider these criteria to be appropriate for the divestiture project. The air districts have made it clear that they don't regard the potential increases from these existing power plants (operating within existing permit limits and in accordance with the relevant District

Rules) as being appropriately compared against their standard CEQA thresholds of significance for development projects (MDAQMD, 1997; SCAQMD, 1997; VCAPCD, 1997)

Alamitos

Annual Gross Capacity factors for 1992-96 ranged from 11.4 to 18.7 percent for Units 1-4, 27.9 to 50.0 percent for Units 5 and 6 (Edison, 1992-1996). Unit 7 is a combustion turbine and the capacity for that unit has ranged from 0.3 to 0.6 percent and is limited by its South Coast AQMD permit to the number of hours the unit may be operated (200 hours per year). There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Alamitos power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance.

Operating permit conditions for Unit 7 impose a limit on the operational hours of the unit (200 hours per year). Because of this limitation, Unit 7 can be expected to function no differently under divestiture and cause no significant impact. The District attainment strategy for Units 1-6, however, assumes that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more RECLAIM credits or through changes to NO_x emissions, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Cool Water

Annual Gross Capacity factors for 1992-96 ranged from 8.7 to 36.9 percent for Units 1 and 2 (Edison, 1992-1996). Units 3 and 4 are combined cycle gas turbines. The capacity for these units has ranged from 18.2 to 25.9 percent. There is additional capacity at this plant that has not been used in recent years.

The Mojave Desert AQMD has indicated that the Air Quality Management Plan for the air basin was developed assuming that future operations of the Cool Water Power Plant occur at levels based on historic data. Based on this, a mass based plant emission cap has been applied to the station as Rule 1158 that helps to achieve District future air quality goals. As noted in the Setting, the MDAQMD has a proposed amendment for Rule 1158 that would make the rule applicable to

any electric power generating facility, not just facilities operated by utilities. This proposed amendment could be adopted as early as September 1997 (Heaston, 1997). With implementation of the proposed amendment, this impact would be less than significant.

Mitigation Measures

- 4.5.a.1 If the MDAQMD has not adopted the planned revisions to Rule 1158 (as discussed above) prior to sale of the Cool Water power plant, then:

To assure that the NO_x emission concentration limits and emission caps will apply to a new owner of the Cool Water Power Plant, regardless of the status of Rule 1158 modifications, Edison will request that the Air District complete modifications to the plant's permits to incorporate emission limits into the permits to operate in substantially the form and stringency described in Draft Rule 1158.

Edison agrees that the transfer of title for Cool Water Power Plant will not occur until either Rule 1158 or the plant's permit to operate has been so modified.

Monitoring Action: Edison provides the CPUC mitigation monitor with a copy of either the revised Rule 1158 or the modified permit to operate.

Responsibility: CPUC

Timing: At least 3 business days prior to the transfer of title

El Segundo

Annual Gross Capacity factors for 1992-96 ranged from 13.1 to 24.3 percent for Units 1-4 (Edison, 1992-1996). There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the El Segundo Power Plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. The District attainment strategy for Units 1-4 assumes that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more RECLAIM credits or through changes to NO_x emissions, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of

divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Ellwood

The Ellwood Energy Support Facility has only one unit, which is a combustion turbine generator. Annual Gross Capacity factors for this unit for 1992-96 ranged from 0.1 to 0.7 percent (Edison, 1992-1996). The plant is limited by its Santa Barbara APCD permit to the number of hours it may be operated (200 hours per year).

Because the plant's permit imposes a limit on the operational hours of the plant (200 hours per year), the plant can be expected to function very similarly under divestiture. No air quality impact would result from divestiture of this plant.

Etiwanda

Annual Gross Capacity factors for 1992-96 ranged from 9.1 to 24.1 percent for Units 1-4 (Edison, 1992-1996). Unit 5 is a combustion turbine and the capacity for that unit has ranged from 0.3 to 0.5 percent and is limited by its South Coast AQMD permit to the number of hours the unit may be operated (1300 hours per year). There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Etiwanda power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. Operating permit conditions for Unit 5 impose a limit on the operational hours of the unit (1300 hours per year). Because of this limitation, Unit 5 can be expected to function no differently under divestiture and should cause no significant impact. However, recent historical usage of Unit 5 indicate that it has not traditionally been used at anywhere near this operational level. The District attainment strategy for Units 1-4, however, assumes that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more reclaim credits or through changes to NO_x emission, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Highgrove

Annual Gross Capacity factors for 1992-96 ranged from 0.01 to 0.5 percent for Units 1-4 (Edison, 1992-1996). There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Highgrove power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. The District attainment strategy for Units 1-4 assumes that the NO_x concentration limits in are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more reclaim credits or through changes to NO_x emission, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Huntington Beach

Annual Gross Capacity factors for 1992-96 ranged from 15.5 to 20.6 percent for Units 1-4 (Edison, 1992-1996). Unit 5 is a combustion turbine and the capacity for that unit has ranged from 0.2 to 0.7 percent and is limited by its South Coast AQMD permit to the number of hours the unit may be operated (1300 hours per year). There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Huntington Beach power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. Operating permit conditions for Unit 5 impose a limit on the operational hours of the unit (1300 hours per year). Because of this limitation, Unit 5 can be expected to function no differently under divestiture and should cause no significant impact. However, recent historical usage of Unit 5 indicate that it has not traditionally been used at anywhere near this operational level. The District attainment strategy for Units 1-4, however, assumes that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more reclaim credits or through changes to NO_x emission, operate the plant at higher levels beyond those expected for other air pollutants in the

SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Long Beach

The Long Beach power plant consists of seven combustion turbines and two steam turbine generators. Due to plant design these systems function as one effective operational unit. Annual Gross Capacity factors for this unit for 1992-96 ranged from 2.04 to 6.6 percent (Edison, 1992-1996). The plant is limited by its South Coast AQMD permit to the overall monthly generating capacity of 34%.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Long Beach Power Plant at historic levels. The District ozone attainment strategy for the plant that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more reclaim credits or through changes to NO_x emissions, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Mandalay

Annual Gross Capacity factors for 1992-96 ranged from 27.6 to 40.0 percent for Units 1-2 (Edison, 1992-1996). Unit 3 is a combustion turbine and the capacity for that unit has ranged from 0.1 to 0.3 percent and is limited by its Ventura AQMD permit (Rule 59) to the number of hours the unit may be operated (200 hours per year). There is additional capacity at this plant that has not been used in recent years.

The Ventura AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Mandalay power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. Operating permit conditions for Unit 3 impose a limit on the operational hours of the unit (200 hours per year). Because of this limitation, Unit 3 can be expected to function no differently under divestiture and cause no significant impact. Divestiture could result in an increase in operations of Units 1 and 2

above what is expected from restructuring. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules. It should be further noted that this plant has installed SCR air quality control equipment which is considered Best Available Retrofit Control Technology (BARCT) and the Ventura County Air Pollution Control District has implemented (on July 15, 1997) changes to Rule 59, so that Rule 59 now applies to non-utilities.

Ormond Beach

Annual Gross Capacity factors for 1992-96 ranged from 9.4 to 38.6 percent for Units 1 and 2 (Edison, 1992-1996). There is additional capacity at this plant that has not been used in recent years.

The Ventura AQMD has indicated that their Air Quality Maintenance Plan for the air basin was developed assuming the future operation of the Ormond Beach power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules. It should be further noted that this plant has installed SCR air quality control equipment, which is considered Best Available Retrofit Control Technology (BARCT), and the Ventura County Air Pollution Control District has implemented (on July 15, 1997) changes to Rule 59, so that Rule 59 now applies to non-utilities.

Redondo

Annual Gross Capacity factors for 1992-96 ranged from 1.2 to 8.4 percent for Units 5 and 6 (Edison, 1992-1996). Units 7 and 8 experienced between 24.8 and 46.9 annual percent capacity for the same period. There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the Redondo power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. The District attainment strategy for Units 5-8 assumes that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under

divestiture, new owners could, by obtaining more reclaim credits or through changes to NO_x emissions, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. . However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

San Bernardino

Annual Gross Capacity factors for 1992-96 ranged from 0.4 to 6.8 percent for Units 1 and 2 (Edison, 1992-1996). There is additional capacity at this plant that has not been used in recent years.

The South Coast AQMD has indicated that the Clean Air Plan for the air basin was developed assuming the future operation of the San Bernardino power plant at historic levels. The District has also indicated that were the plant to operate at maximum output, the resulting emissions would exceed the emissions used for developing the attainment strategy for ozone compliance. The District attainment strategy for Units 1 and 2 assumes that the NO_x concentration limits are subject to the SCAQMD's RECLAIM policy for NO_x which uses air basin wide historical NO_x emission levels and an assumed yearly reduction rate to achieve air quality goals. While the RECLAIM policy will insure that NO_x emissions will cause no significant impact within the air basin, under divestiture, new owners could, by obtaining more reclaim credits or through changes to NO_x emissions, operate the plant at higher levels beyond those expected for other air pollutants in the SCAQMD's Clean Air Plan. However, project analysis has indicated only a tendency that new owners could operate more and not that plants would operate at maximum capacity (as a result of divestiture). Any increase in operations should be considered in the update of the attainment plans but is not considered significant as long as operations are within existing permit limits and comply with District Rules.

Conclusion

As discussed above for each power plant, the project is not expected to result in significant air quality impacts at any of the twelve plants to be divested.

b) Exposure of Sensitive Receptors

As identified in the Local Setting presented above, there are many sensitive receptors situated in close proximity (1,000 feet or less) of seven of the twelve power plants proposed for divestiture. Of these seven plants, six are in the South Coast Air Basin, and one (Ellwood) is in the South Central Coast Air Basin. The health effects associated with criteria air pollutants is discussed in (a), Violation of Air Quality Standards, above. This section focuses on the effects to sensitive receptors of hazardous air pollutants (HAPs).

Local Issues

The project would have the potential to increase local pollutant concentrations in the vicinity of the generating stations. While keeping within permit limits, a new operator, seeking to maximize revenue and profits from the plants to be divested, would have a tendency to increase operations above those expected if Edison were to retain the plants in the restructured electric industry.

The types and concentrations of HAPs emitted during power plant operations are dependent on the plant's fuel mix and level of operation. Increased operations using natural gas could result in increased concentrations of benzene and formaldehyde. Increased fuel oil use could result in increased concentrations of a larger number of hazardous air pollutants, including nickel and hexavalent chromium. While health risk assessments have not been conducted for the Edison plants to be divested, health risk assessments for similar plants have shown no significant increase in either cancer risk, noncarcinogenic chronic risk, or noncarcinogenic acute risk (PG&E, 1996). The main contributors to the risk were hexavalent chromium and nickel, both of which are emitted only when burning fuel oil. The foreseeable scenarios of divestiture include increased use of the power plants but not substantial increases in the burning of fuel oil.

The new owner of each of the plants would need to comply with the requirements of the Air Toxics "Hot Spots" Information and Assessment Act. This would include the preparation of health risk assessments periodically to determine toxic effects of plant emissions. If in completing a health risk assessment a "significant health risk" were determined to exist, all exposed individuals must be notified of those risks identified.

Conclusion

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

c) Change in Climate

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

Conclusion

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

d) Odors

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

Regional Issues

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

Local Issues

The project would not create objectionable odors at any of the power plants to be divested or in the vicinity of those sites. Odors from fuel combustion have decreased in recent years due to regulations that have lowered the allowable quantity of sulfur in diesel fuel. In addition, the plants almost exclusively burn natural gas, which produces negligible odors. As a result, no significant odor impacts would be expected.

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

Conclusion

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