4.4 AIR QUALITY

4.4.1 Introduction

This chapter describes the existing air quality within the project area and evaluates the potential incremental air-quality impacts associated with the construction and operation of the project. Although some temporary impacts result during construction activities, the project is not expected to cause any objectionable odors, expose sensitive receptors to increased pollutant concentrations, or otherwise significantly affect air quality.

The baseline conditions and regulatory framework discussions presented herein apply equally to the proposed Segment 2 and 3 components and their corresponding alternatives.

4.4.2 Applicable Laws and Regulations

Ambient air quality standards in California are the responsibility of both the United States EPA and the California Air Resources Board (CARB). These standards are set at concentrations that provide margins of safety for the protection of public health and welfare. Federal and state air quality standards are presented in Table 4.4-1. The federal, state, and local air quality regulations are identified below in further detail.

4.4.2.1 Federal Regulations

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for oxidants (ozone), carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), particulate matter (PM_{10}), and lead (Pb). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf).

4.4.2.2 California Regulations

CARB is responsible for ensuring implementation of the California Clean Air Act and federal Clean Air Act, and for regulating emissions from consumer products and motor vehicles. CARB established California Ambient Air Quality Standards (CAAQS) for all pollutants for which the federal government has NAAQS and also has standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. California standards are generally more stringent than the NAAQS. CARB established emission standards for vehicles sold in California and for various types of equipment. CARB also sets fuel specifications to reduce vehicular emissions, although it has no direct regulatory approval authority over the proposed project. Federal and state air quality standards are presented in Table 4.4-1.

TABLE 4.4-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	National Standards	State Standards
Ozone		
8-hour	0.08 ppm(1)	None
1-hour (federal)	0.12 ppm	0.09 ppm
Carbon Monoxide		
1-hour	35 ppm	20 ppm
8-hour	9 ppm	9 ppm
Nitrogen Dioxide		
1-hour	None	0.25 ppm
Annual	0.053 ppm	None
Suspended Particulates		
PM_{10}: 24-hour	150 µg/m³(2)	50 µg/m³
Annual	50 µg/m³	20 µg/m³, AAM(3)
$PM_{2.5}$: 24-hour	65 µg/m³	None
Annual	15 µg/m³	12 µg/m³, AAM(3)
Sulfur Dioxide		
1-hour	None	0.25 ppm
24-hour	0.14 ppm	0.04 ppm
Annual	0.03 ppm	None
Lead		
30-Day Average	None	1.5 µg/m³
Quarterly Average	1.5 µg/m³	None
Sulfate		
24-hour	None	25 µg/m³
Visibility		10 miles for hours with
8-hour (10am to 6pm)	None	humidity less than 70%
Hydrogen Sulfide		
1-hour	None	0.03 ppm
Vinyl Chloride		
24-hour	None	0.01 ppm

[1] ppm = parts per million.

[2] µg/m3 = micrograms per cubic meter.

[3] AAM = Annual Arithmetic Mean.

The California Clean Air Act (Assembly Bill [AB] 2595) mandates achievement of the maximum degree of emission reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date.

California also established a state air toxics program (AB1807, Tanner) subsequently revised by the new Tanner Bill (AB2728). This program sets forth provisions to implement the national program for control of hazardous air pollutants. The Air Toxic "Hot Spots" Information and Assessment Act (AB2588), as amended by Senate Bill (SB) 1731, requires

operators of certain stationary sources to inventory air toxic emissions from their operations and, if directed to do so by the local air district, prepare a health risk assessment to determine the potential health impacts of such emissions. If the health impacts are determined to be "significant" (greater than 10 per million exposures or non-cancer hazard index greater than 1.0), each facility must, upon approval of the health risk assessment, provide public notification to affected individuals.

The California Health and Safety Code (§39655) defines a toxic air contaminant (TAC) as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Under California's TAC program (Assembly Bill 1807, Health and Safety Code §39650 et seq.), CARB, with the participation of the local air pollution control districts, evaluates and develops any needed control measures for air toxics. The general goal of regulatory agencies is to limit exposure to TACs to the maximum extent feasible.

4.4.2.3 Local Regulations

The project area falls within the jurisdictional authorities of the Antelope Valley Air Quality Management District (AVAQMD) and Kern County Air Pollution Control District (KCAPCD). Segment 3 components are within AVAQMD and KCAPCD jurisdictions. The boundary between the AVAQMD and the KCAPCD is the Los Angeles/Kern County Line at approximately MP 9.6 of the proposed Segment 3 500 kV T/L route between the Antelope Substation and Substation One (refer to Figures 3-1 and 3-3). All of Segment 2 is within the AVAQMD (i.e., Los Angeles County). Both the AVAQMD and KCAPCD are responsible for air quality planning in the basin and development of the Air Quality Management Plans (AQMP). The AQMPs establish the strategies that would be used to achieve compliance with NAAQS and CAAQS in all areas within the jurisdictions. The AVAQMD and KCAPCD generally regulate stationary sources of air pollutants. Potential regulations that may apply to the proposed project include Permits, Fees, and Prohibitions.

Review of the project description (refer to Section 3.0 of the PEA) indicates most equipment would be mobile or portable. Portable equipment would comply with the CARB Portable Equipment Registration Program (PERP). Emissions that would be generated from this project consist of criteria combustion pollutants and fugitive dust emissions.

4.4.3 Existing Conditions

4.4.3.1 Meteorology and Climate

Segments 2 and 3 of the proposed Antelope Transmission Project are located within the western portion of the Mohave Desert Air Basin (MDAB) that includes portions of Kern County and Los Angeles County.

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevada in the north by Tehachapi Pass (3,800 feet elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet).

During the summer a Pacific Subtropical High cell that sits off the coast generally influences the MDAB, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months have maximum average temperatures over 100.4°F.

4.4.3.2 Regional Air Quality

The AVAQMD and KCAPCD monitor levels of various criteria pollutants at various monitoring stations. During the 2003 ozone season (May to October), only four exceedances of the federal 0.12 parts per million (ppm) one-hour ozone standard were logged at the AVAQMD's Lancaster air monitoring station. The ozone levels in 2003 were lower than in 2002, when five days of unhealthful air were recorded in the Antelope Valley.

Windblown smog originating in the South Coast Air Basin (SCAB) that includes the Los Angeles Basin, Orange County, and the valley portion of San Bernardino County is a primary source of air pollution measured within the AVAQMD and KCAPCD boundaries. Transported pollutants from the San Joaquin and the Santa Clarita Valleys also impact local air quality concentrations. Tables 4.4-2 through 4.4-6 provide air quality data for the Mojave and Lancaster air monitoring stations for calendar years 2002 through 2004.

TABLE 4.4-2
AMBIENT OZONE LEVELS: 2002-2004 (PPM)[1,4]

	Mojave – 923 Poole Street			Lancaster – 43301 Division Street		
	2002	2003	2004	2002	2003	2004
Maximum 1-Hour Average	0.115	0.119	0.121	0.157	0.156	0.121
Number of Days Exceeding California 1-Hour Standard[2]	16	31	8	46	50	37
Number of Days Exceeding Federal 1-Hour Standard[3]	0	0	0	5	4	0
Maximum 8-Hour Average	0.102	0.103	0.090	0.107	0.120	0.010
Number of Days Exceeding Federal 8-Hour Standard	26	27	3	38	33	24

1 Data source: CARB – ADAM (http://www.arb.ca.gov/adam/welcome.html).

2 The California 1-hour O_3 ambient air quality standard is 0.09 ppm.

3 The Federal 1-hour O_3 ambient air quality standard is 0.12 ppm.

4 ppm = parts per million.

TABLE 4.4-3
AMBIENT NITROGEN DIOXIDE LEVELS: 2002-2004 (PPM)[1,2,3]

	Mojave – 923 Poole Street			Lancaster – 43301 Division Street		
	2002	2003	2004	2002	2003	2004
Maximum 1-Hour Average	0.071	0.073	0.064	0.101	0.067	0.103
Annual Average	0.009	0.009	0.008	0.016	0.015	0.015
Number of Days Exceeding California 1-Hour Standard[2]	0	0	0	0	0	0

1 Data source: CARB – ADAM (http://www.arb.ca.gov/adam/welcome.html).

2 All hourly and annual average concentrations are below the state and federal NO_2 ambient air quality standards.

3 ppm = parts per million.

TABLE 4.4-4
AMBIENT CARBON MONOXIDE LEVELS: 2002-2004 (PPM)[1,2,3,4]

	Mojave – 923 Poole Street			Lancaster – 43301 Division Street		
	2002	2003	2004	2002	2003	2004
Maximum 1-Hour Average	ND	ND	ND	ND	ND	ND
Maximum 8-Hour Average(2)	ND	ND	ND	2.24	1.88	1.72

1 Data source: CARB – ADAM (http://www.arb.ca.gov/adam/welcome.html).

2 All 8-hour concentrations are below the California and federal CO ambient air quality standards of 9.0 ppm.

3 ppm = parts per million.

4 ND = No data for this pollutant at these monitoring stations.

TABLE 4.4-5
AMBIENT SULFUR DIOXIDE LEVELS: 2002-2004 (PPM)[1,2,3,4]

	Mojave – 923 Poole Street			Lancaster – 43301 Division Street		
	2002	2003	2004	2002	2003	2004
Maximum 1-Hour Average	ND	ND	ND	ND	ND	ND
Maximum 24-Hour Average	ND	ND	ND	ND	ND	ND
Annual Average	ND	ND	ND	ND	ND	ND

1 Data source: CARB – ADAM (http://www.arb.ca.gov/adam/welcome.html).

2 ppm = parts per million.

3 Project area is in attainment for sulfur dioxide.

4 ND = No data for this pollutant at these monitoring stations.

TABLE 4.4-6
AMBIENT PARTICULATE LEVELS: 2002-2004 ($\mu g/m^3$)[1,2,3]

	Mojave – 923 Poole Street			Lancaster – 43301 Division Street		
	2002	2003	2004	2002	2003	2004
Maximum 24-Hour Average	20861	97	41	73	57	56
Estimated Number of Days per Year[1] Exceeding California Standard (30 $\mu g/m^3$, 24-hour average)	6.6	12.1	0	ND	1	0
Estimated Number of Days per Year[1] Exceeding Federal Standard (50 $\mu g/m^3$, 24-hour average)	6.6	0	0	0	0	0
State Annual Average	21.4	19.3	18.3	ND	23.2	ND
National Annual Average	23.1	20.9	ND	29.7	24.6	22.6

1 Data source: CARB – ADAM (http://www.arb.ca.gov/adam/welcome.html).

2 $\mu g/m^3$ = micrograms per cubic meter.

3 ND = No data for this pollutant at these monitoring stations.