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 proposed project. Although some temporary impacts would 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 Antelope-Pardee 500 kV T/L route and to the Alternative 1 route.

4.4.2 Methodology

Data supplied by the U.S. Environmental Protection Agency (EPA) and the South Coast Air Quality Management District (SCAQMD) was used to develop construction-emission estimates for the proposed project.

The potential impact of proposed project construction activity on air quality is based on a "worst-case" scenario using projections of the numbers and types of equipment that would be used during construction of the proposed project. It is unlikely, however, that this scenario would occur. The following "worst-case" assumptions were made:

- All vehicles and equipment would be operated daily and simultaneously, based on air-quality guidelines

4.4.3 Applicable Laws and Regulations

Ambient air quality standards in California are the responsibility of both the 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.

4.4.3.1 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).

4.4.3.2 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.

The California Clean Air Act (AB2595) 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.

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		
8-hour (10am to 6pm)	None	10 miles for hours with 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.

4.4.3.3 Local Regulations

The proposed project area falls within the jurisdictional authorities of the South Coast Air Quality Management District (SCAQMD) and the Antelope Valley Air Quality Management District (AVAQMD). Both the SCAQMD and AVAQMD 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 SCAQMD and AVAQMD generally regulate stationary sources of air pollutants.

Review of the project description 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 the proposed project consist of criteria combustion pollutants and fugitive dust emissions.

4.4.4 Existing Conditions

4.4.4.1 <u>Meteorology and Climate</u>

The proposed project site is located within the South Coast Air Basin (SCAB) and the western portion of the Mojave Desert Air Basin (MDAB) that includes portions of Los Angeles County.

The SCAB is characterized by sparse winter rainfall and hot summers. A temperature inversion, a warm layer of air that traps the cool marine air layer underneath it and prevents vertical mixing, is the prime factor that allows contaminants to accumulate in the basins. The mild climatological pattern is interrupted by periods of extremely hot weather, winter storms, and Santa Ana winds. The climate of the basin is not unique and the high concentration of mobile and stationary sources of air contaminants in the basin, in addition to the mountains, which surround the perimeter of the basin, contribute to poor air quality in the region.

Wind flow patterns play an important role in the transport of air pollutants in the basin. The winds flow from offshore and blow eastward during the daytime hours. In summer, the sea breeze typically starts in mid-morning, peaks at 10-15 miles per hour, and subsides after sundown. There is a calm period until about midnight. At that time, the land breeze begins from the northwest, typically becoming calm again about sunrise. In winter, the same general wind flow patterns exists except that summer wind speeds average slightly higher than winter wind speeds. This pattern of low wind speeds is a major factor that allows the pollutants to accumulate in the basin. The unstable air accompanying the passing storms during the winter and infrequent strong northeasterly Santa Ana wind flows from the mountains and deserts north of the basin interrupts the normal wind patterns in the basin.

Temperature affects the air quality of the region in several ways. Local winds are the result of temperature differences between the relatively stable ocean air and the uneven heating and cooling that takes place in the basin due to a wide variation in topography. Temperature also has a major effect on vertical mixing height and affects chemical and photochemical reaction times. On average, August is the warmest month while January is the coolest month. Most of the annual rainfall in the basin occurs between November and April.

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 the Tehachapi Pass (3,800-foot 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 the 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 that at least three months have maximum average temperatures over 100.4° F.

4.4.4.2 Regional Air Quality

The SCAQMD and AVAQMD monitor levels of various criteria pollutants at various monitoring stations. In 2002, the SCAQMD exceeded the federal and state standards for ozone at most monitoring locations on one or more days. The federal and state one-hour ozone standards were exceeded 32 and 81 days respectively. The East and Central San Bernardino Mountains and the Santa Clarita Valley exceeded standards most frequently.

Exceedances of the federal PM_{10} standards did not occur in the SCAB in 2002. The state PM_{10} standards were exceeded at all of the monitoring locations in the SCAB including the East San Fernando Valley and the Santa Clarita Valley. Exceedance of the state standard occurred on a total of 90 days in the SCAB in 2002. The federal $PM_{2.5}$ standard was exceeded at 10 monitoring locations in the SCAB.

In 2002, neither federal nor state standards for NO_2, SO_2, lead or sulfates were exceeded in the SCAB. Currently, the SCAB is in attainment with the ambient air quality standards for lead, SO_2, and NO_2 (SCAQMD, 2003). The SCAQMD predicts that the SCAB would comply with the federal PM_{10} requirements by 2006 and the federal ozone standard by 2010 (SCAQMD, 2003). Compliance with the state standards for ozone and PM_{10} are not expected until after 2010 (SCAQMD, 2003).