APPENDIX C

AIR QUALITY TECHNICAL REPORT AND CALCULATIONS

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1.0 SUMMARY OF FINDINGS

Terry A. Hayes Associates Inc. has completed an air quality analysis for the Banducci Substation Project (Proposed Project). Key findings are listed below.

- Regional construction emissions would result in a less-than-significant impact for nitrogen oxides (NO_X), inhalable particulate matter (PM_{10}), sulfur oxides (SO_X), and no mitigation is required.

- Construction toxic air contaminant (TAC) emissions would result in a less-than-significant impact and no mitigation is required.

- Construction odors would result in a less-than-significant impact and no mitigation measure is required.

- Regional operational emissions would result in a less-than-significant impact and no mitigation is required.

- The Proposed Project would be consistent with the Eastern Kern County Air Quality Management Plan and no mitigation is required.

- Cumulative construction air quality emissions would not result in a regionally significant impact and no mitigation is required.

- The Proposed Project would not exceed 10,000 metric tons of carbon dioxide equivalent (CO_2e) per year and would result in a less-than-significant global climate change impact.

2.0 INTRODUCTION

2.1 PURPOSE

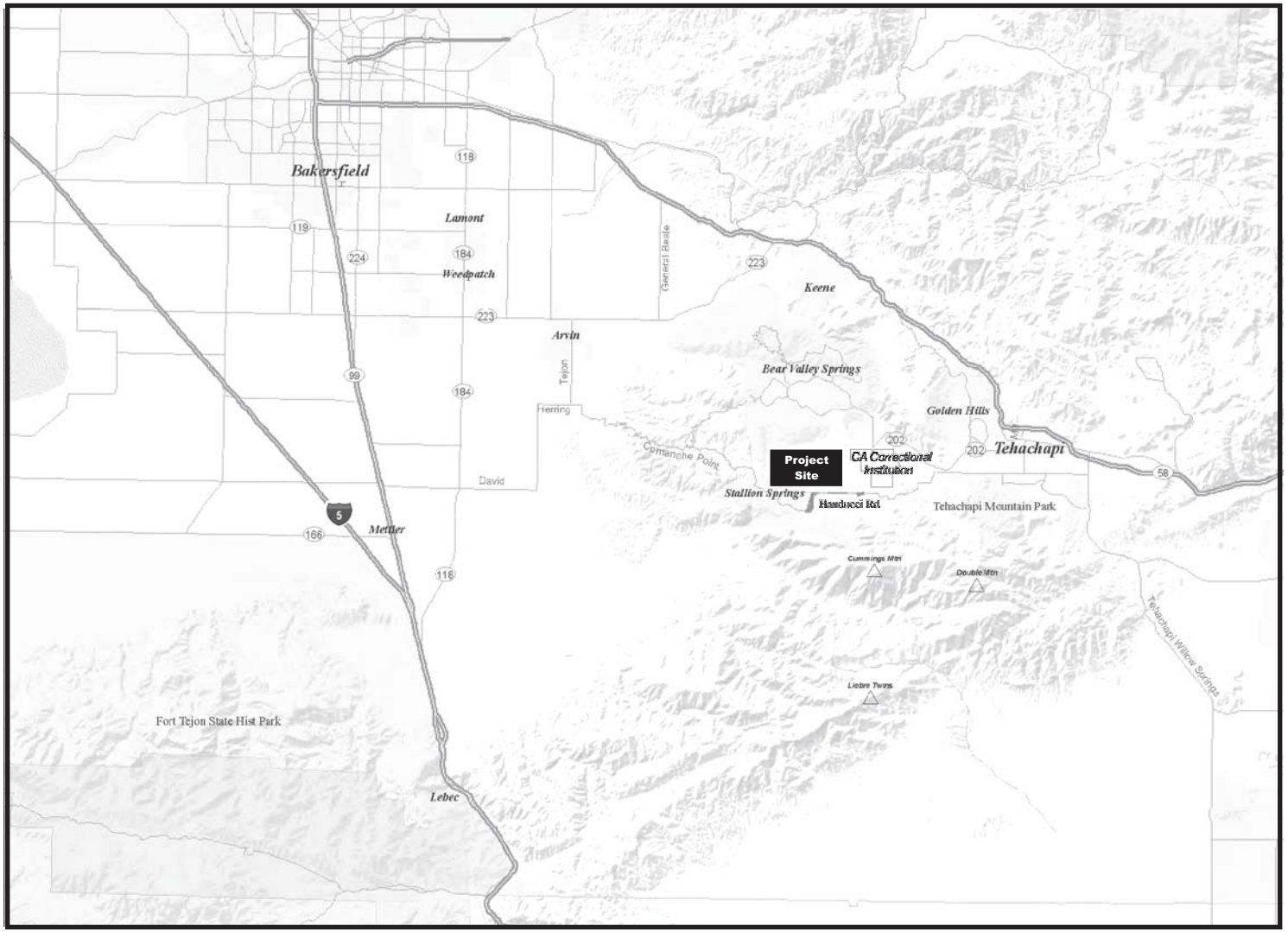
The purpose of this report is to evaluate the potential for air quality impacts of the Banducci Substation Project. Potential air quality emissions are analyzed for construction and operation of the Proposed Project. Mitigation measures for potentially significant impacts are recommended when appropriate to reduce air quality emissions levels.

2.2 PROJECT DESCRIPTION

The Banducci Substation Project is proposed by the Southern California Edison (SCE) Company because the existing Cummings Substation cannot accommodate anticipated electrical demands beginning in the year 2016. The Proposed Project includes construction of a new Banducci 66/12 kilovolt (kV) Substation, two new 66 kV subtransmission line segments that would loop the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line, three new underground 12 kV distribution getaways, and telecommunication facilities to connect the Proposed Project to SCE's existing telecommunications system (**Figures 2-1** and **2-2**).

The Proposed Project would allow SCE to meet the forecasted increase in electrical demand within the Electrical Needs Area by delivering an increased capacity of 56.0 megavolt-amperes (MVA). The Electrical Needs Area is located within the Antelope-Bailey 66 kV System and is bounded by Woodford-Tehachapi Road to the east, El Camino Road to the north, Pacific Gas & Electric service territory to the west, and High Gun Drive to the south. Customers from the Electrical Needs Area are currently provided by the three existing 12 kV distribution circuits from the Cummings Substation. Having an additional substation in this area allows for greater operational flexibility instead of having only one substation. The new Banducci Substation is proposed to be located at the southeast corner of Pelliser Road and unimproved Dale Road (Property). This location would shorten the 12 kV distribution circuit lengths from the existing 20-mile circuit emanating from the Cumming Substation to approximately 14 to 17 miles. A shorter circuit would reduce the probability of circuit outages on that circuit, improve circuit reliability, and allow one of the existing 12 kV circuits to transfer a load below its planned loading limit. In addition, the Proposed Project will be adjacent to the existing 66 kV right-of-way (ROW), thereby, minimizing the need to construct a new 66 kV substranmission line segment. The Proposed Project is planned to be operational by June 2016.

Upon construction completion of the proposed Banducci Substation, the new substation would be unstaffed, and electrical equipment within the substation would be remotely monitored and controlled by an automated system from SCE's Vincent Substation. SCE personnel would typically visit for electrical switching and routine maintenance purposes. Maintenance would occur as needed and would include activities such as repairing conductors, replacing insulators, replacing poles, and access road maintenance.



LEGEND:

Project Site

SOURCE: Southern California Edison, 2011.

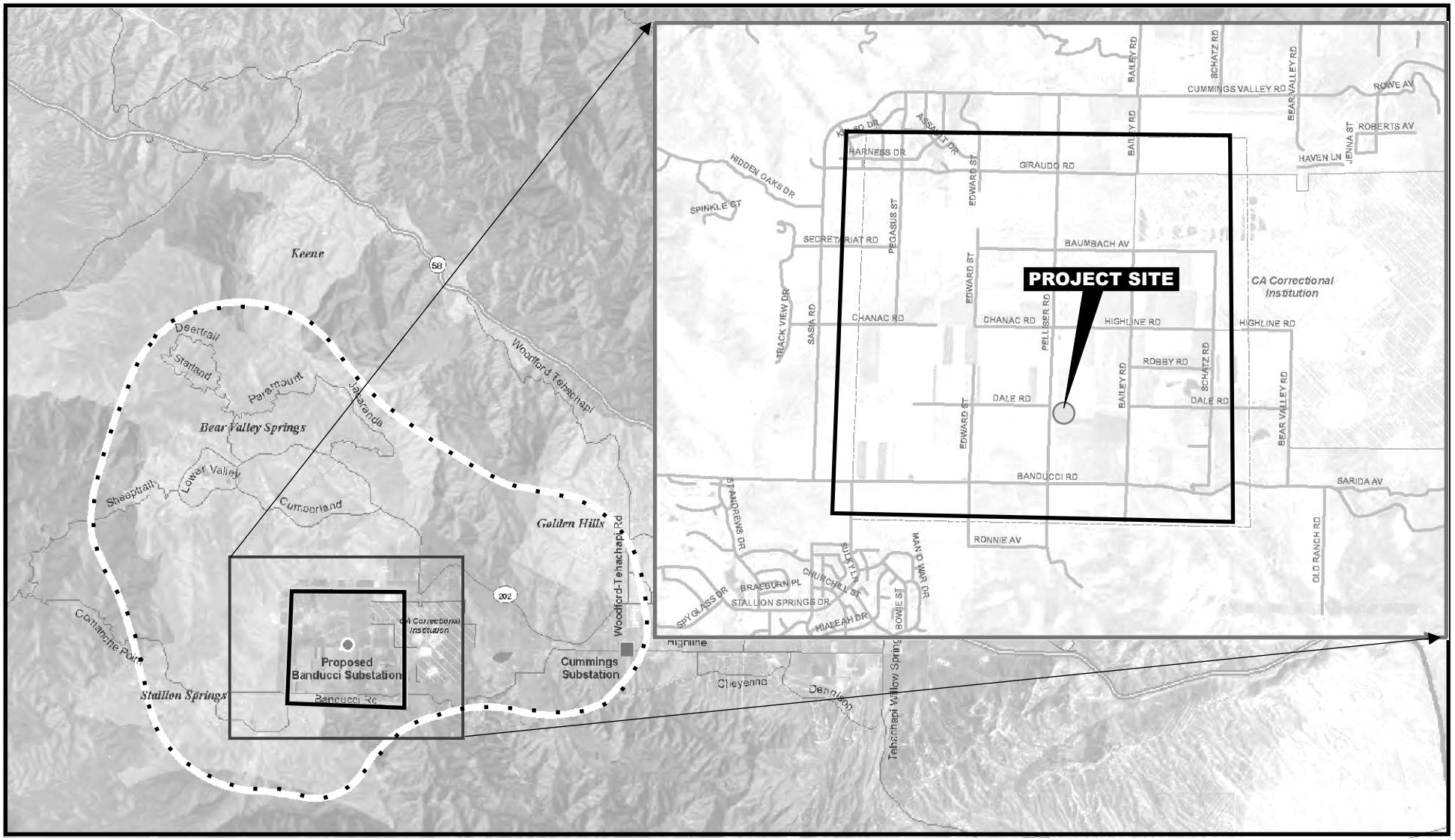
APPROX. SCALE

N

0 5 10 MILE

FIGURE 2-1

REGIONAL PROJECT LOCATION



LEGEND:

- Project Site
- Banducci Electrical Needs Area

SOURCE: Southern California Edison, 2011.

Approx. Scale

N

0 5 10 Mile

FIGURE 2-2

LOCAL PROJECT LOCATION

3.0 AIR QUALITY

This section examines the degree to which the proposed project may cause significant adverse changes to air quality. Short-term construction emissions occurring from activities such as site grading and haul truck trips are discussed in this section. This analysis focuses on air pollution from two perspectives: daily emissions and pollutant concentrations. "Emissions" refer to the quantity of pollutants released into the air, measured in pounds per day (ppd). "Concentrations" refer to the amount of pollutant material per volumetric unit of air, measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

3.1 POLLUTANTS & EFFECTS

Criteria air pollutants are defined as pollutants for which the Federal and State governments have established ambient air quality standards for outdoor concentrations to protect public health. The Federal and State standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), particulate matter ten microns or less in diameter (PM_{10}), and lead (Pb). These pollutants are discussed below.

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February.[1] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG), which includes volatile organic compounds (VOC), and nitrogen oxides (NO_X) react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of ROG and NO_X, the components of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation. Ideal conditions for the creation of O_3 occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. The greatest source of smog-producing gases is the automobile. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

[1]Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air.

Nitrogen Dioxide. NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10}. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO_2 are coal and oil used in power plants and industries. Generally, the highest levels of SO_2 are found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_X, and VOC. Inhalable particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

Lead. Pb in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become lead-emission sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth.

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans. A toxic substance released into the air is considered a toxic air contaminant (TAC). TACs are identified by State and Federal agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management was designed to protect residents from the health effects of toxic substances in the air.

Greenhouse Gases. Greenhouse gas (GHG) emissions refer to a group of emissions that are generally believed to affect global climate conditions. The greenhouse effect compares the Earth and the atmosphere surrounding it to a greenhouse with glass panes. The glass panes in a greenhouse let heat from sunlight in and reduce the amount of heat that escapes. GHGs, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), keep the average surface temperature of the Earth close to 60 degrees Fahrenheit (°F). Without the greenhouse effect, the Earth would be a frozen globe with an average surface temperature of about 5°F.

In addition to CO_2, CH_4, and N_2O, GHGs include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF_6), and water vapor. SF_6 is commonly used in the utility industry for insulation and current interruption in electric transmission and distribution equipment. Of all the GHGs, CO_2 is the most abundant pollutant that contributes to climate change through fossil fuel combustion. CO_2 comprised 83.3 percent of the total GHG emissions in California in 2002.[2] The other GHGs are less abundant but have higher global warming potential than CO_2. For example, SF_6 is a very potent GHG with 23,900 times the global warming potential of CO_2. According to the United States Environmental Protection Act (USEPA), one pound of SF_6 has the same global warming impacts of 11 tons of CO_2. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. The CO_2e of CH_4 and N_2O represented 6.4 and 6.8 percent, respectively, of the 2002 California GHG emissions. Other high global warming potential gases represented 3.5 percent of these emissions.[3] In addition, there are a number of human-made pollutants, such as CO, NO_X, non-methane VOC, and SO_2, that have indirect effects on terrestrial or solar radiation absorption by influencing the formation or destruction of other climate change emissions.

3.2 REGULATORY SETTING

Federal

United States Environmental Protection Agency. The Federal Clean Air Act (CAA) governs air quality in the United States. The United States Environmental Protection Agency (USEPA) is responsible for enforcing the CAA. The USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). NAAQS are required under the 1977 CAA and

[2]California Environmental Protection Agency, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 11.
[3]*Ibid.*

subsequent amendments. The USEPA regulates emission sources that are under the exclusive authority of the Federal government, such as aircraft, ships, and certain types of locomotives. The USEPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in States other than California. Automobiles sold in California must meet stricter emission standards established by the California Air Resources Board (CARB).

As required by the CAA, NAAQS have been established for seven major air pollutants: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb. The CAA requires the USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. These Federal standards are summarized in **Table 3-1**. The USEPA has classified the Mojave Desert Air Basin as nonattainment for 8-hour O_3 and 24-hour PM_{10}. The remaining pollutants are unclassified.

State

California Air Resources Board. In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). In California, the CCAA is administered by the CARB at the State level and by the air quality management districts and air pollution control districts at the regional and local levels. The CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. These CAAQS are generally more stringent than the corresponding Federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources such as motor vehicles. The CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. The CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The State standards are summarized in **Table 3-1**.

The CCAA requires the CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Kern County portion of the Basin is designated as a nonattainment area for O_3, $PM_{2.5}$, and PM_{10}. The remaining pollutants are designated as attainment.

TABLE 3-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE EASTERN KERN AIR POLLUTION CONTROL DISTRICT

Pollutant	Averaging Period	California		Federal	
		Standards	Attainment Status	Standards	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	Nonattainment	—	—
	8-hour	0.070 ppm (137 µg/m^3)	Nonattainment	0.075 ppm (147 µg/m^3)	Nonattainment
Respirable Particulate Matter (PM_{10})	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Nonattainment
	Annual Arithmetic Mean	20 µg/m^3	Nonattainment	—	—
Fine Particulate Matter ($PM_{2.5}$)	24-hour	—	—	35 µg/m^3	Attainment
	Annual Arithmetic Mean	12 µg/m^3	Attainment	15.0 µg/m^3	Attainment
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Unclassified
	1-hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Unclassified
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Attainment	53 ppb (100 µg/m^3)	Unclassified
	1-hour	0.18 ppm (338 µg/m^3)	Attainment	100 ppb (188 µg/m^3)	—
Sulfur Dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m^3)	Unclassified
	1-hour	0.25 ppm (655 µg/m^3)	Attainment	75 ppb (196 µg/m^3)	Unclassified
Lead (Pb)	30-day average	1.5 µg/m^3	Attainment	—	—
	Calendar Quarter	—	—	0.15 µg/m^3	—

"—" = not available
SOURCE: CARB, *Ambient Air Quality Standards*, and *area designations maps/State and National*, February 2011.
USEPA, *The Green Book Nonattainment Areas for Criteria Pollutants*, September 26, 2011.

Local

Eastern Kern Air Pollution Control District (EKAPCD). The EKAPCD has the primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. The EKAPCD implements air quality programs required by State and Federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. Rules and regulations to control construction and operational emissions are established in Rules 401 and 402. These include:

- **Rule 401**. Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emission, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

  a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A.

- **Rule 402**. The purpose of Rule 402 is to reduce the amount of PM_{10} from significant man-made fugitive dust sources from large operations and in an amount sufficient to maintain National Ambient Air Quality Standards. A large operation is defined as "any active operation, including vehicle movement on unpaved roadways, on property involving in excess of 100 contiguous acres of disturbed surface area, or any earth-morning activity exceeding a daily volume of 7,700 cubic meters (10,000 cubic yards) three (3) times during the most recent 365-day period." This Rule shall apply to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion. The following requirements of Rule 402 are provided below.

  a) A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source. This Subsection shall not apply to unpaved roadways.
  b) A person shall utilize one (1) or more Reasonably Available Control Measures to minimize fugitive dust emissions from each fugitive dust source type which is part of any active operation subject to this Rule, including unpaved roadways.
  c) For any large operation, except those satisfying Subsection V.D.3. (implementation of RACM's), a person shall not cause or allow downwind PM_{10} ambient concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations as determined by simultaneous upwind and downwind sampling. High-volume particulate matter samplers, or other EPA-approved equivalent method(s) for PM_{10} monitoring shall be used.
  d) No person shall conduct or authorize conducting a large operation subject to requirements of this Rule without either: (1) conducting on-site PM_{10} air quality monitoring and associated recordkeeping, or (2) filing for and obtaining an approved fugitive dust emissions control plan pursuant to Subsection V.D.3.

Kern County General Plan (KCGP). The purpose of the KCGP is to ensure that Kern County Air Pollution Control District is upholding its responsibility for managing and permitting existing, new, and modified sources or air emissions to conform with Federal, State, and local standards for air quality. The policies in the KCGP that are applicable to air quality as related to the Proposed Project are provided below.

- **Policy 18**. The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be replaced on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

- **Policy 19**. In considering discretionary projects for which an EIR must be prepared pursuant to the CEQA, the appropriate decision making body, as part of its deliberations, will ensure that:

  a) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and
  b) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the CEQA.

- **Policy 20**. The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

- **Policy 21**. The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

- **Policy 22**. Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with Federal, State, and local standards.

- **Policy 23**. The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District.

Global Climate Change

In response to growing scientific and political concern with global climate change, California has recently adopted a series of laws to reduce emissions of GHGs into the atmosphere. In September 2002, Assembly Bill (AB) 1493 was enacted, requiring the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. California Governor Arnold Schwarzenegger announced, on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

In response to the Executive Order, the Secretary of the California Environmental Protection Agency created the Climate Action Team (CAT), which, in March 2006, published the *Climate Action Team Report to Governor Schwarzenegger and the Legislature* (2006 CAT Report). The 2006 CAT Report identifies a recommended list of strategies that the State could pursue to reduce climate change GHG emissions. These are strategies that could be implemented by various State agencies to ensure that the Governor's targets are met and can be met with existing authority of the State agencies.

Assembly Bill 32. In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006, also known as AB 32, into law. AB 32 focuses on reducing GHG emissions in California and requires the CARB to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. To achieve this goal, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. Because the intent of AB 32 is to limit 2020 emissions to the equivalent of 1990, it is expected that the regulations would affect many existing sources of GHG emissions and not just new general development projects. Senate Bill (SB) 1368, a companion bill to AB 32, requires the California Public Utilities Commission and the California Energy Commission to establish GHG emission performance standards for the generation of electricity. These standards will also apply to power that is generated outside of California and imported into the State.

AB 32 charges the CARB with the responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. On June 1, 2007, the CARB adopted three discrete early action measures to reduce GHG emissions. These measures involved complying with a low carbon fuel standard, reducing refrigerant loss from motor vehicle air conditioning maintenance, and increasing methane capture from landfills.[4] On October 25, 2007, the CARB tripled the set of previously approved early action measures. The approved measures include improving truck efficiency (i.e., reducing aerodynamic drag), electrifying port equipment, reducing perfluorocarbons from the semiconductor industry, reducing propellants in consumer products, promoting proper tire inflation in vehicles, and reducing sulfur hexaflouride emission from the non-electricity sector. The CARB has determined that the total statewide aggregated greenhouse gas 1990 emissions level and 2020 emissions limit is 427 million metric tons of CO_2e. The 2020 target reductions are currently estimated to be 174 million metric tons of CO_2e.

The CARB AB 32 Scoping Plan contains the main strategies to achieve the 2020 emissions cap. The Scoping Plan was developed by the CARB with input from the Climate Action Team and proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve the environment, reduce oil dependency, diversify energy sources, and enhance public health while creating new jobs and improving the State economy. The GHG reduction strategies contained in the Scoping Plan include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The measures in the Scoping Plan adopted by the Board will be developed and put in place by 2012.

The CARB has also developed the greenhouse gas mandatory reporting regulation, which required reporting beginning on January 1, 2008 pursuant to requirements of AB 32. The regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. The regulation language identifies major facilities as those that generate more than 25,000 metric tons of CO_2 per year. Cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons of CO_2 per year, make up 94 percent of the point source CO_2 emissions in California.

CEQA Guideline Amendments. California Senate Bill (SB) 97 required the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The CEQA Guideline amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. Noteworthy revisions to the CEQA Guidelines include:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;

[4]California Air Resources Board, Proposed Early Action Measures to Mitigate Climate Change in California, April 20, 2007.

- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and
- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

Senate Bill 375. California Senate Bill (SB) 375, passed September 30, 2008, provides a means for achieving AB 32 goals through regulation of cars and light trucks. SB 375 aligns three critical policy areas of importance to local government: (1) regional long-range transportation plans and investments; (2) regional allocation of the obligation for cities and counties to zone for housing; and (3) a process to achieve greenhouse gas emissions reductions targets for the transportation sector. SB 375 establishes a process for CARB to develop the GHG emissions reductions targets for each region (as opposed to individual local governments or households). CARB must take certain factors into account before setting the targets, such as considering the likely reductions that will result from actions to improve the fuel efficiency of the Statewide fleet and regulations related to the carbon content of fuels (low carbon fuels). CARB must also convene a Regional Targets Advisory Committee, which includes representation from the League of California Cities, California State Association of Counties, metropolitan planning organizations, developers, planning organizations and other stakeholder groups. Furthermore, before setting the targets for each region, CARB is required to exchange technical information with the Metropolitan Planning Organizations (MPOs) for that region and with the affected air district. SB 375 provides that the MPOs may recommend a target for its region.

SB 375 relies upon regional planning processes already underway in the 17 MPOs in the State to accomplish its objectives. The provisions related to GHG emissions only apply to the MPOs in the State, which includes 37 of the 58 counties. Most notably, the measure requires the MPO to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP), which sets forth a vision for growth for the region taking into account the transportation, housing, environmental, and economic needs of the region. The SCS is the blueprint by which the region will meet its GHG emissions reductions target if there is a feasible way to do so.

SB 375 indirectly addresses another longstanding issue: single purpose State agencies. The new law will require the cooperation of CARB, the California Transportation Commission (CTC), the California Department of Transportation (Caltrans) and the State Department of Housing and Community Development (HCD). For example, SB 375 takes a first step to counter this problem by connecting the Regional Housing Needs Allocation (RHNA) to the transportation planning process. While these State agencies will be involved in setting the targets and adopting new guidelines, local governments and the MPOs will not only provide input into setting the targets, but will serve as the lead on implementation. Member cities and counties working through their MPOs are tasked with development of the new integrated regional planning and transportation strategies designed to meet the GHG targets.

SB 375 also includes a provision that applies to all regional transportation planning agencies in the State that recognizes the rural contribution towards reducing GHGs. More specifically, the bill requires regional transportation agencies to consider financial incentives for cities and counties that have rural areas or farmland, for the purposes of, for example, transportation investments for the preservation and safety of the city street or county road system, farm to market, and interconnectivity transportation needs. An MPO or county transportation agency shall also consider financial assistance for counties to address countywide service

responsibilities in counties that contribute towards the GHG emissions reductions targets by implementing policies for growth to occur within their cities.
SB 375 uses California Environmental Quality Act (CEQA) streamlining as an incentive to encourage residential projects, which help achieve AB 32 goals to reduce GHG emissions. Cities and counties that find the CEQA streamlining provisions attractive have the opportunity (but not the obligation) to align their planning decisions with the decisions of the region.

SB 375 provides more certainty for local governments and developers by framing how AB 32's reduction goal from transportation for cars and light trucks will be established. It should be noted, however, that SB 375 does not prevent CARB from adopting additional regulations under its AB 32 authority. However, based on the degree of consensus around SB 375 and early indications from CARB, such actions are not anticipated in the foreseeable future.[5]

CARB Guidance. The CARB has published draft guidance for setting interim GHG significance thresholds (October 24, 2008). The guidance is the first step toward developing the recommended Statewide interim thresholds of significance for GHG emissions that may be adopted by local agencies for their own use. The guidance does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that are responsible for substantial GHG emissions (i.e., industrial, residential, and commercial projects). The CARB believes that thresholds in these important sectors will advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

3.3 EXISTING AIR QUALITY

3.3.1 Air Pollution Climatology

The project site is located within the Mojave Desert portion of the Basin. The Basin is comprised of four air districts: the Kern County APCD, the Antelope Valley Air Quality Management District (AQMD), the Mojave Desert AQMD, and the eastern portion of the South Coast AQMD. The Kern County APCD consists of the eastern portion of Kern County, Antelope Valley consists of the northeastern portion of Los Angeles County, the Mojave Desert AQMD includes San Bernardino County and the most eastern portion of Riverside County, and the portion of the South Coast AQMD includes the eastern part of Riverside County (**Figure 3-1**).

[5]American Planning Association, California Chapter, *Analysis of SB 375*, http://www.calapa.org/-en/cms/?2841, accessed September 26, 2011.

LEGEND:

Mojave Desert Air Basin

State of California

SOURCE: California Air Resources Board, State and Local Air Monitoring Network Plan, October 1998

Approx. Scale

N

0 250 500 Feet

taha

taha 2011-037

Banducci Substation Project
Air Quality Report

SOUTHERN CALIFORNICA EDISON

FIGURE 3-1

MOJAVE DESERT AIR BASIN

The Basin covers more than 20,000 square miles and encompasses the majority of California's high desert with typical hot, dry summers and cold winters with little precipitation. It is bounded by the San Gabriel and San Bernardino mountains to the south, which serves as the boundary separating the Mojave Desert Air Basin and the South Coast Air Basin. The Tehachapi Mountains serve as the northwest boundary separating the Mojave Desert Air Basin from the San Joaquin Air Basin. The majority of the population resides in the southeast area of the Mojave Desert Air Basin. Most of the Mojave Desert Air Basin is sparsely populated and, as a result, there is less industrial growth and fewer automobiles to generate pollution than other areas in California. During high wind conditions, air quality in the Mojave Desert Air Basin is also heavily influenced by airborne pollutants transported into the region from the San Joaquin Valley and South Coast Air Basins.

3.3.2 Local Climate

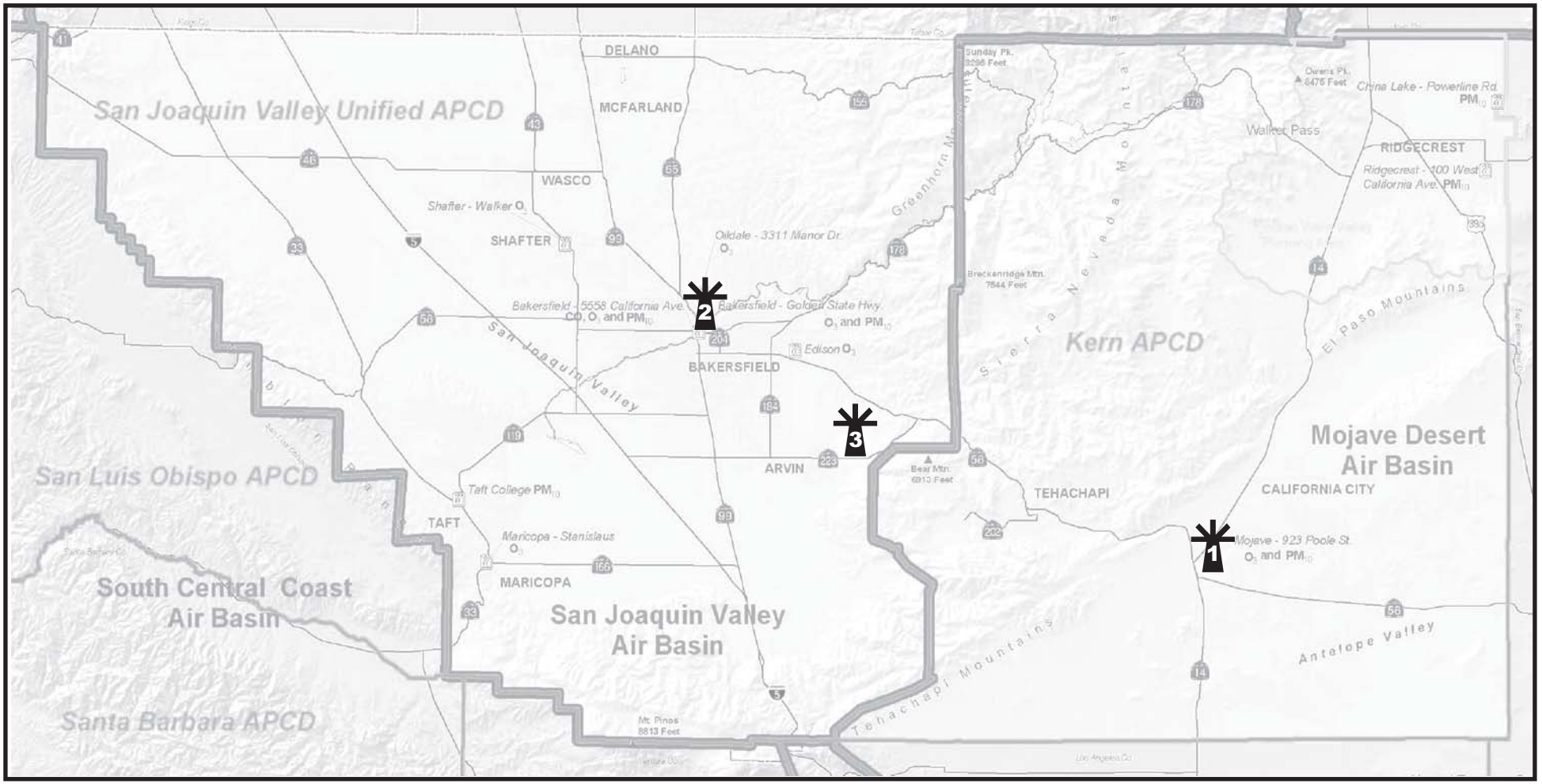
The mountains and hills within the Basin contribute to the variation of rainfall, temperature, and winds throughout the region. Within the project site and its vicinity, the average wind speed, as recorded at the Oak Knolls Monitoring Station, is approximately 5.8 miles per hour. Wind in the vicinity of the project site predominately blows from the southwest.

The annual average temperature in the project area is 68°F.[6] The project area experiences an average winter temperature of approximately 53°F and an average summer temperature of approximately 84°F. Total precipitation in the project area averages approximately 11 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages approximately five inches during the winter, approximately three inches during the spring, approximately two inches during the fall, and less than one inch during the summer.[7]

3.3.3 Air Monitoring Data

The EKAPCD currently has three permanent air quality monitoring stations. The nearest monitoring station to the project site is the Mojave – 923 Poole Street Monitoring Station, which is located approximately 35 miles southeast of the project (**Figure 3-2**). Historical data from the Mojave – 923 Poole Street Monitoring Station were used to characterize existing conditions in the vicinity of the project area. The Mojave – 923 Poole Street Monitoring Station was used to monitor O_3, $PM_{2.5}$ and PM_{10}. However, the Mojave – 923 Poole Street Monitoring Station did not monitor CO and NO_2. The remaining pollutants are monitored by the next two most representative monitoring stations. These monitoring stations are Bakersfield-Golden State Highway located approximately 56 miles northwest of the project and Arvin-Bear Mountain Monitoring Stations located approximately 36 miles northwest of the project. The Bakersfield-Golden State Highway Monitoring Station historical data were used to characterize existing CO levels, while the Arvin-Bear Mountain Monitoring Station was used to characterize existing NO_2 levels.

[6]Western Regional Climate Center, Historical Climate Information, available at http://www.wrcc.dri.edu, accessed September 19, 2011.
[7]I*bid.*



LEGEND:

Monitoring Stations

1. Mojave - 923 Poole Street
2. Arvin-Bear Mountain
3. Bakersfield-Golden State Highway

SOURCE: Kern County, 2011.

Approx. Scale

N

0 7.5 15 Mile

FIGURE 3-2

AIR QUALITY MONITORING STATIONS

Table 3-3 shows pollutant levels, the State and Federal standards, and the number of exceedances recorded at the Mojave – 923 Poole Street, Bakersfield-Golden State Highway, and Arvin-Bear Mountain Monitoring Stations. The summary table indicates that one-hour O_3 concentrations, eight-hour O_3 concentration, 24-hour PM_{10} concentrations, annual $PM_{2.5}$ concentrations exceeded the State standards between 2008 and 2010.

TABLE 3-3: 2008-2010 AMBIENT AIR QUALITY DATA IN PROJECT VICINITY

		Mojave – 923 Poole Street, Bakersfield-Golden State Highway and Arvin-Bear Mountain Monitoring Stations /a/		
		Number of Days Above State Standard		
Pollutant	**Pollutant Concentration & Standards**	**2008**	**2009**	**2010**
Ozone	Maximum 1-hr Concentration (ppm)	0.112	0.101	0.092
	Days > 0.09 ppm (State 1-hr standard)	15	3	0
	Days > 0.12 ppm (Federal 1-hr standard)	0	0	0
	Maximum 8-hr Concentration (ppm)	0.103	0.084	0.084
	Days > 0.07 ppm (State 8-hr standard)	60	61	21
	Days > 0.075 ppm (Federal 8-hr standard)	41	32	3
Carbon Monoxide	Maximum 1-hr Concentration (ppm)	n/a	n/a	n/a
	Days > 20 ppm (State1-hr standard)	n/a	n/a	n/a
	Maximum 8-hr Concentration (ppm)	2.17	1.51	1.46
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
Nitrogen Dioxide	Maximum 1-hr Concentration (ppm)	0.033	0.051	0.032
	Days > 0.18 ppm (State 1-hr standard)	0	0	0
PM_{10}	Maximum 24-hr Concentration (µg/m^3)	144.8	67.0	49.0
	Days > 50 µg/m^3 (State 24-hr standard)	2	1	0
$PM_{2.5}$	Maximum 24-hr Concentration (µg/m^3)	19.1	12.7	10.0
	Days > 35 µg/m^3 (National 24-hr standard)	0	0	0
	Annual Arithmetic Mean (µg/m^3)	n/a	5	5
	Exceed State Standard (12 µg/m^3)	n/a	No	No
	Exceed Federal Standard (15 µg/m^3)	n/a	No	No

/a/ Data provided by CARB Air Quality Data Statistics. Mojave – 923 Poole Street air monitoring station data was used for O_3, PM_{10}, and $PM_{2.5}$; Bakersfield-Golden State Highway air monitoring data was used for CO; and Arvin-Bear Mountain Boulevard air monitoring station was used for NO_2. Available at http://www.arb.ca.gov/adam/index.html, accessed September 13, 2011.
SOURCE: CARB, Top 4 Summary, available at http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed September 13, 2011.

3.3.4 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The CARB has identified the following as being the groups most likely to be affected by air pollution: children under 14, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The proposed Banducci Substation site would be located on approximately 5 to 8 acres situated on the northwesterly portion of an 80-acre parcel. This privately owned parcel is located at the southeast corner of Pelliser Road and the unimproved Dale Road (Property) in unincorporated Kern County.

SCE has also considered an alternative to the Banducci Substation location, Site Alternative B. Site Alternative B would be located on approximately 5 to 8 acres situated on the southerly portion of a 20-acre parcel. This privately owned parcel is located on the northeast corner of Pelliser Road and the unimproved Highline Road in unincorporated Kern County.
Sensitive receptors near the proposed Banducci Substation location and Site Alternative B include scattered rural residences, a California Correctional Institute located to the east, and the Cummings Valley School located northeast of these locations.

There are also two proposed fiber optic telecommunications cables as part of the Proposed Project. One would connect the proposed Banducci Substation to the existing Cummings Substation and then continue on to the existing Monolith Substation. A second fiber optic telecommunications cable would connect the proposed Banducci Substation to the existing Monolith Substation. Sensitive receptors located near each telecommunications route include the California Correctional Institute, residences and various schools.

3.4 METHODOLOGY AND SIGNIFICANCE CRITERIA

3.4.1 Methodology

Construction

Regional criteria pollutant and GHG construction emissions were estimated using a spreadsheet methodology (see Appendix C, *Construction Regional Emission Calculations*). Construction emission factors were taken from a combination of CARB OFFROAD2007 and EMFAC2007 models. Regional emissions were assessed based on CEQA significance criteria to determine project impact significance.

Construction calculations were made based upon the Proposed Project description. The components of the Proposed Project are described below. An anticipated construction schedule and equipment mix can be found in the appendix to this Study.

Banducci Substation Construction. The Banducci Substation would be a new 66/12 kV unstaffed, automated, 56.0 MVA low-profile substation. Components to be included in the proposed substation are: 66 kV low-profile steel switchrack, 66/12 kV transformers, 12 kV low-profile steel switchrack, capacitor banks, mechanical and electrical room (MEER), and restroom facilities. In addition, the proposed substation would be enclosed on all sides by an 8-foot high perimeter wall and landscaping would be designed to filter views for the surrounding community. Approximately 6.3 acres of the Proposed Project site would be graded during construction of the Banducci Substation.

Distribution Getaway Installation. The Proposed Project would include the construction of three new underground distribution getaways. The getaways would consist of cable, conduits and vaults. Each vault would be located outside the substation wall on proposed SCE property. For the construction of the vaults, excavation activities would generally be done using a backhoe. The anticipated dimensions for the trench would be approximately 24 inches wide by approximately 51 inches deep, and approximately a length of 125 or 375 feet. The conduits would then be installed using spacers to create a ductbank consisting of two columns of three stacked 5-inch conduits apiece. The conduits would be encased in concrete with a minimum encasement of 3 inches on all sides. Once the encasements hardened, the trench would be backfilled with 1.5 sacks and sand slurry, which is a mix of sand and water with 1.5 bags of cement added with no aggregate. After the completion of installing the ductbank, vaults, and

vent pipes, SCE's cable crews would install three single conductors 1,000 kcmil jacketed aluminum cross-linked polyethylene (CLP) cables per circuit run in one of the 5-inch conduits in the ductbank.

Subtransmission Line Segment Installation. The proposed 66 kV subtransmission line route would entail opening the existing Corrections-Cummings-Kern River 1 66kV line on Pelliser Road south of Dale Road. Specifically, two independent source line segments would be created by looping in the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line, creating the new Banducci-Kern River 1 66 kV Subtransmission Line and the new Banducci-Correction-Cummings 66 kV Subtransmission Line.

To create the new Banducci-Corrections-Cummings 66kV subtransmission line, SCE would install two new wood poles in the existing right-of-way (ROW) on the east side of Pelliser Road north of the proposed Banducci Substation north block wall. The northernmost new wood pole would be installed approximately 30 feet north of the existing pole it is replacing to adjust and even out the span lengths. The first wood pole north of the new Banducci Substation would be installed approximately 75 feet north of the existing wood pole it is replacing to adjust and even out the span lengths. A TSP self-supporting guy stub pole will be installed on the west side of Pelliser Road and west of this wood pole in franchise to support an approximate 15 degree angle on the wood pole. A steel stranded cable (span guy) would connect the TSP guy stub to the wood pole to support the side strain on the wood pole. The new wood poles will be installed to reconfigure the existing subtransmission and distribution conductors to accommodate a distribution riser. A new TSP would be installed on SCE property but outside of the fence line of the new Banducci Substation. It would be installed in the northwest corner of the SCE parcel. This TSP would accommodate an approximately 105 degree turn in the line from the existing alignment and start the loop to the rear of the new Banducci Substation. Approximately 200 feet east of the TSP, SCE would install a LWS pole, the proposed line would continue east for approximately 200 feet to the north east corner of the proposed Banducci Substation where another TSP would be installed to accommodate a 90 degree turn and would continue south for approximately 115 feet to another TSP where the line would make another 90 degree turn and continue west to the substation switch rack. In order to create the proposed Banducci-Kern River 1 66 kV Subtransmission Line, SCE would install two new wood poles in the existing ROW on the east side of Pelliser Road south of the proposed Banducci Substation south block wall. The two new wood replacement poles would be installed approximately 3 feet from the existing wood poles. A TSP self-supporting guy stub pole would be installed on the west side of Pelliser Road and west of the first wood pole south of the new Banducci Substation in franchise to support an approximate 15 degree angle on the wood pole. A steel span guy would connect the TSP guy stub to the wood pole to support the side strain on the wood pole. The new wood poles would be installed to reconfigure the existing subtransmission and distribution conductors to accommodate a distribution riser. SCE would then install one TSP at the south west corner of the proposed Banducci Substation in order to accommodate an approximate 105 degree turn in the line from the existing alignment and start the loop to the rear of the new Banducci Substation. Approximately 200 feet east of the TSP, SCE would install a LWS pole, the proposed line would continue east for approximately 200 feet to the south east corner of the proposed Banducci Substation where another TSP would be installed to accommodate a 90 degree turn and continue north approximately 200 feet north to another TSP where the line would make another 90 degree turn and continue west to the substation switchrack.

Energizing the new source lines is the final step in completing the 66 kV subtransmission construction. The Correction-Kern River 1 section of the existing Correction-Cummings-Kern River 1 66 kV Subtransmission Line would be de-energized in order to connect the new 66 kV

subtransmission line segments to the existing system. To reduce the need for electrical service interruptions, de-energizing and re-energizing the existing subtransmission lines may occur at night when electrical demand is low. Therefore, no customers are expected to experience outages due to this action.

Telecommunication Construction. Electrical equipment at the proposed Banducci Substation would be monitored through SCE's existing telecommunications system. Telecommunication infrastructure would be added to connect the proposed Banducci Substation to SCE's existing telecommunications system. The new telecommunication equipment would be installed within the MEER at the proposed Banducci Substation and within the existing MEER at the Monolith Substation. There are two proposed fiber optic telecommunications cable routes. One potential route would connect the proposed Banducci Substation to the existing Cummings Substation and then continue on to the existing Monolith Substation. The length of this route would be approximately 14.5 miles. The second route option would directly connect the fiber optic telecommunications cable from the proposed Banducci Substation to the existing Monolith Substation. The length of this route would be approximately 17.5 miles. Approximately 28 of the 751 existing wood poles on the proposed telecommunication routes would be replaced to support the Proposed Project.

Operation

Operational mobile source emissions were calculated using a spreadsheet method (see Appendix D, *Operational Emissions Calculations*). EMFAC2007, which was the latest model at the time this report was prepared, emissions rates were used to calculate vehicle emissions. This model reflects the CARB's current understanding of how vehicles travel and how much they pollute. Assumptions used in the operational mobile source analysis include:

- Number of on-site vehicles: 2
- Number of days per year for subtransmission line inspection: 1
- Number of days per year for substation site visit: 156
- Distance travelled per subtransmission line inspection: 72 miles
- Distance travelled per substation site visit: 60 miles

3.4.2 Significance Criteria

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

The EKAPCD has developed specific CEQA significance thresholds to assess construction and operational air quality impacts. The Proposed Project would have a significant impact related to air quality if:

- Annual regional construction emissions were to exceed EKAPCD Rule 210.1 construction emissions threshold for VOC (25 tons per year), NO_X (25 tons per year), SO_X (27 tons per year), or PM_{10} (15 tons per year);
- Daily operational emissions were to exceed EKAPCD Rule 210.1 operational emissions threshold for VOC and NO_X (137 pounds per day);
- The Proposed Project would generate significant emissions of TACs to nearby sensitive receptors; and/or
- The Proposed Project would create an odor nuisance affecting a substantial number of people.

Greenhouse Gas Significance Criteria

In accordance with Appendix G of the State CEQA Guidelines, the Proposed Project would have a significant impact related to greenhouse gases if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The EKAPCD has not formally adopted recommendations or official guidance to evaluate the significance of GHG emissions for projects within the Mojave Desert Air Basin in which the EKAPCD is not the lead agency. The EKAPCD has adopted an addendum to their EKAPCD CEQA Guidelines, *Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency*. The recommended threshold for GHG emissions is 25,000 tons per year of CO_2e.

In addition, the South Coast Air Quality Management District (SCAQMD) has adopted a more conservative interim operational significance threshold of 10,000 metric tons of CO_2e per year for projects in which they are the lead agency. Given the Proposed Project site's proximity to the SCAQMD, and to implement the most conservative approach, this analysis applies the SCAQMD's significance threshold. A project's contribution to cumulative impacts to global climate change is considered cumulatively considerable if the project would generate 10,000 metric tons CO_2e per year.

3.5 ENVIRONMENTAL IMPACTS

3.5.1 Construction Phase

Regional Impacts

Construction of the Proposed Project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the project site. Fugitive dust emissions would primarily result from site preparation (e.g., excavation) activity. NO_X emissions would primarily result from the use of construction equipment. The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day,

depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

It is mandatory for all construction projects in the Basin to comply with EKAPCD Rule 402 for Fugitive Dust. The purpose of this Rule is to reduce the amount of PM_{10} emitted from significant man-made fugitive dust sources. Rule 402 applies to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion. Rule 402 control measures for each source category are identified below.

- **Unpaved Road**. Reasonable available control measures for unpaved roads include, but are not limited to, improving road surface, controlling vehicular traffic speed, and/or applying dust suppressants.

- **Construction/Demolition Activity**. Reasonable available control measures for construction or demolition activity include, but are not limited to, using wind breaks and/or apply dust suppressants.

- **Earth-moving or Open Storage Pile**. Reasonable available control measures for this source include, but are not limited to, wind screens, enclosure around storage piles, and/or apply dust suppressant.

- **Disturbed Surface Area**. Reasonable available control measures for disturbed surface area include, but are not limited to, fences or barriers, vegetate, apply dust suppressants, cover the disturbed surface area with gravel, and/or compact the disturbed surface area.

Table 3-4 shows estimated annual emissions associated with each construction phase. Annual emissions of VOC (0.88), NO_X (6.83), and PM_{10} (8.20) would be less than the thresholds of significance established by EKAPCD (see Appendix C, *Construction Regional Emission Calculations*).[8] Therefore, the Proposed Project would result in a less-than-significant impact related to regional construction emissions.

TABLE 3-4: ESTIMATED ANNUAL CONSTRUCTION EMISSIONS

	Tons per Year		
	VOC	**NO_X**	**PM_{10}**
Construction Phase			
Banducci Substation Construction	0.5	3.66	8.06
Distribution Getaway Installation	0.02	0.18	0.01
Subtransmission Line Segment Installation	0.25	2.03	0.09
Telecommunication Construction	0.15	0.95	0.04
Total Proposed Project Construction Emissions	**0.88**	**6.83**	**8.20**
Regional Significance Threshold	**25**	**25**	**15**
Exceed Threshold?	No	No	No

SOURCE: TAHA, 2012; Appendix C, *Construction Regional Emission Calculations*.

[8]After implementing the measures included in Rule 402, PM_{10} emissions associated with construction activities would be further reduced by approximately 61 percent so that they would total only approximately 2.57 tons per year, which is even further below the 15 tons per year standard set by EKAPCD.

Toxic Air Contaminant Impacts

The greatest potential for TAC emissions during construction would be diesel particulate emissions associated with heavy equipment operations. Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. “Individual Cancer Risk” is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will develop cancer based on the use of standard risk assessment methodology. Given the short-term construction schedule of approximately one year, it is not anticipated that the Proposed Project would result in a long-term (i.e., 70-year) source of TAC emissions. In addition, construction-related health risk assessments are typically completed for large, stationary construction projects that generate high emissions in one location near sensitive land uses and often include high volumes of truck trips. The potential for continuous TAC exposure is low given the low-density rural area and the transient nature of subtransmission line construction activity. Therefore, the Proposed Project would result in a less-than-significant impact related to construction TAC emissions.

Odor Impacts

Potential sources that may emit odors during construction activities include equipment exhaust and architectural coatings. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The Proposed Project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Construction would not cause an odor nuisance since there are no sensitive receptors near the project site. Construction odors would result in a less-than-significant impact.

Consistency with the Air Quality Attainment Plan

The EKAPCD developed an ozone redesignation request and maintenance plan for the Federal one-hour ozone standard on January 9, 2003. The eastern portion of Kern County ozone nonattainment has experienced less than an average exceedance per year for the one-hour Federal Ozone National Ambient Air Quality Standard (NAAQS) over the last three years. The Ozone, Attainment Demonstration, Maintenance Plan, and Redesignation Request document concludes that an attainment of the one-hour ozone standard has been approved by the USEPA, and deemed a maintenance area. As of February 2008, the District has filed an Ozone Early Progress Plan to reclassify the eight-hour ozone standard, and USEPA is reconsidering the level of the Federal eight-hour ozone standard. The initial 8-hour ozone standard attainment plan is not yet due to the U.S. EPA. The one-hour ozone maintenance plan requires no new control measures for maintaining attainment of the one-hour standard.

The EKAPCD California Clean Air Act Ozone Air Quality Attainment Plan (AQAP) was approved by the California Air Resources Board (CARB) on February 18, 1993. EKAPCD’s most recent Annual Implementation Progress Report for this attainment plan was completed in December 15, 2005. The implementation progress report notes that KCAPCD is recognized by CARB staff as a nonurbanized, moderate ozone nonattainment District overwhelmingly impacted by upwind transport.

The majority of the ambient ozone pollution in the area are pollutants that have been transported by the wind from the San Joaquin Valley and South Coast Air Basins. The implementation progress report indicates that no additional control measures are required for

attainment of the ozone California Ambient Air Quality Standards (CAAQS), attainment will occur by reducing the pollution in these adjacent air basins.

As explained above, the Proposed Project would not result in significant regional construction emissions and, thus, would not interfere with the attainment of air quality standards. Construction activity would not conflict or obstruct implementation of the AQAP and would result in a less-than-significant impact.

Construction Phase Mitigation Measures

Impacts related to air quality emissions would be less than significant. No mitigation measures are required.

Impacts After Mitigation

Impacts related to construction-related regional air quality were determined to be less than significant without mitigation.

3.5.2 Operational Phase

Regional Impacts

Once construction is completed, operational emissions would result from vehicles travelling to the proposed Banducci Substation site for periodic inspection, maintenance, and repair. The assumptions used in this analysis along with the calculation methodology are shown in Appendix D, *Operational Emissions Calculations.* **Table 3-5** shows estimated operational emissions associated with motor vehicles. As shown in **Table 3-5**, operational emissions would be less than the EKPACD thresholds. No stationary emissions sources would be associated with the Proposed Project. Therefore, the Proposed Project would result in a less-than-significant impact related to operational emissions.

TABLE 3-5: ESTIMATED ANNUAL OPERATIONAL EMISSIONS

	Pounds per Day			
	VOC	**NO_X**	**SO_X**	**PM_{10}**
Subtransmission Line Inspection	0.006	0.02	<1	0.005
Substation Site Visit	0.005	0.02	<1	0.004
Total Proposed Project Operation Emissions	0.011	0.04	<1	0.009
Operational Significance Thresholds	**137**	**137**	—	—
Exceed Threshold?	No	No	No	No

"—" = No threshold has been identified.
SOURCE: TAHA, 2012, Appendix D, *Operational Emission Calculations.*

Toxic Air Contaminant Impacts

TAC emissions associated with long-term operation of the Proposed Project can potentially affect nearby sensitive land uses. The primary sources air toxics associated with the Proposed Project would be diesel-powered trucks associated with maintenance activities. The EKAPCD has not published guidance for completing mobile-source health risk assessments. However, the SCAQMD has published guidance titled *Health Risk Assessment Guidance for Analyzing*

Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (August 2003). The document is designed for the assessment of truck idling and movement (such as, but not limited to, truck stops, warehouse/distribution centers or transit centers), According to the CARB, a distribution center of health concern would include over 100 truck trips per day and be located within 1,000 feet of a sensitive land use.[9] The Proposed Project would generate less than 100 truck trips per day. Based on the limited activity of TAC sources, the Proposed Project would not warrant the need for a health risk assessment associated with on-site activities. Therefore, the Proposed Project would result in a less-than-significant impact related to TAC.

Odor Impacts

According to the *CEQA Air Quality Handbook*, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies and fiberglass molding. The Proposed Project would not include any of these potential sources and would not have a high potential to generate odor impacts. Therefore, the Proposed Project would result in a less-than-significant impact related to operation odors.

Consistency with the Air Quality Attainment Plan

A significant impact would occur if the Proposed Project conflict with or obstruct implementation of the applicable air quality plan. The determination of AQAP consistency is primarily concerned with the long-term influence of the Proposed Project on regional air quality. As mentioned above, the Proposed Project would not have a significant long-term impact on the region's ability to meet the State and federal air quality standards. As such, the Proposed Project would not jeopardize the attainment standard. Operational activity would not conflict or obstruct implementation of the AQAP and would result in a less-than-significant impact.

Operational Phase Mitigation Measures

Impacts related to operational air quality emissions would be less than significant. No mitigation measures are required.

Impacts After Mitigation

Impacts related to operational air quality were determined to be less than significant without mitigation.

3.6 CUMULATIVE IMPACTS

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project exceeds the identified significance thresholds, its emissions may be cumulatively considerable, potentially resulting in significant adverse air quality impacts to the region's existing air quality conditions. In that case, additional analysis to assess cumulative impacts would be necessary.

[9] CARB, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005.

Here however, the Proposed Project would not result in a significant VOC, NO_X, or PM_{10} impacts during construction or operation. Emissions from the Proposed Project are less than significant on a project basis and are not cumulatively considerable. The Proposed Project would not contribute to a cumulative impact.

3.6.2 Global Climate Change

Greenhouse gas emissions associated with construction activities, SF_6 leakage during project operations and on-road mobile vehicle operations were calculated. Greenhouse gas construction emissions were estimated in a similar manner and using the same assumptions as described above for regional construction emissions. As shown in **Table 3-6**, the Proposed Project would generate a total 1,072 metric tons of CO_2e during construction activity. The SCAQMD has developed guidance for the determination of significance of GHG construction emissions, and recommends that total emissions from construction be amortized over 30 years. The amortized construction emissions would result in a total annual emission of 34 metric tons CO_2e.

Operational emissions would result from on-road mobile vehicle operations and SF_6 leakage. Mobile source operational emissions were estimated in a similar manner and using the same assumptions as described above for regional operational emissions. The two 66kV subtransmission line positions and the two 66kV transformer bank positions would each be equipped with a circuit breaker and three group-operated horizontal mount disconnect switches. Surge arresters and 66kV potential transformers (PTs) would be installed on the line positions only. The 66 kV bus tie position would be equipped with a circuit breaker and two group-operated horizontal mount disconnect switches. Three 66kV bus PTs would be connected to the operating bus through a three-phase group-operated disconnected switch.

Although the Proposed Project would use the latest technology that limits leakage, some leakage would be anticipated over time as equipment ages or is accidently broken. GHG emissions associated with SF_6 leakage were calculated using the following equation:

$$E = L/100 \times M_{SF6} \times 23{,}200 \times 4.536 \times 10^{-4}$$

where:

E = GHG emissions from SF_6 leakage (metric tons CO_2 equivalent per year)
L = SF_6 leakage rate = 0.5 percent per year
M_{SF6} = Total "weight" of SF_6 in new circuit breakers = 155 pounds
SF_6 global warming potential = 23,200
Conversion factor for metric tons per pound = 4.536×10^{-4}

As shown in **Table 3-6**, the estimated annual GHG emissions from the operational activities is nine (9) metric tons CO_2e. These emissions would primarily be from SF_6 leakage.

The combined GHG emissions from construction activities (36 CO_2e) and operational 489 CO_2e would result in a total amortized emissions calculation of 533 CO_2e of GHG (see Appendix E, *Greenhouse Gas Emission Calculations*). This amount would be considerably less than the 10,000 metric tons per year of CO_2e significance threshold. In addition, SCE has made a significant investment in not only improving its SF_6 gas management practices, but also in purchasing state-of-the-art gas handling equipment that minimizes SF_6 leakage. The new equipment has improved sealing designs that virtually eliminate possible sources of leakage.

SCE has also addressed SF_6 leakage on older equipment by performing repairs and replacing antiquated equipment through its infrastructure replacement program. It is expected that the Proposed Project would have a minimal amount of SF_6 leakage as a result of the installation of state-of-the-art equipment and SCE's SF_6 gas management practices. Pursuant to its existing practices, SCE would reduce potential GHG impacts resulting from the Proposed Project to the greatest extent practicable. Therefore, the Proposed Project would result in a less-than-significant impact related to GHG emissions.

TABLE 3-6: ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS

Phase	**Carbon Dioxide Equivalent (Metric Tons per Year)**
Construction	
Banducci Substation Construction	568
Distribution Getaway Installation	28
Subtransmission Line Segment Installation	318
Telecommunication Construction	157
Total Construction Emissions	**1,072**
Construction Emissions Amortized /a/	**36**
Operations	
SF6 Leakage	**8**
Mobile Sources	**489**
Total Operational Emissions	**497**
Total Annual GHG Emissions	**533**
Significance Threshold	**10,000**
Exceed Threshold?	No

/a/ The South Coast Air Quality Management District recommends annualizing construction emissions over 30 years in the GHG analysis.
SOURCE: TAHA, 2012, Appendix E, *Greenhouse Gas Emission Calculations*.

Appendices

A. Climate Information
B. CARB Data
C. Construction Emission Calculations
D. Operational Emission Calculations
E. GHG Emission Calculations
F. SCAQMD Rule 403 – Fugitive Dust

Appendix A

Climate Information

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NOTE:
To print data frame (right side), click on right frame before printing.

1981 - 2010

- Daily Temp. & Precip.
- Daily Tabular data (~23 KB)
- Monthly Tabular data (~1 KB)
- NCDC 1981-2010 Normals (~3 KB)

1971 - 2000

- Daily Temp. & Precip.
- Daily Tabular data (~23 KB)
- Monthly Tabular data (~1 KB)
- NCDC 1971-2000 Normals (~3 KB)

1961 - 1990

- Daily Temp. & Precip.
- Daily Tabular data (~23 KB)
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Period of Record

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  - Average Maximum
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Precipitation
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- Daily Extreme and Average
- Daily Average
- Precipitation Probability by Duration.
- Precipitation Probability by Quantity.

TEHACHAPI, CALIFORNIA

Period of Record General Climate Summary - Precipitation

Station:(048826) TEHACHAPI

From Year=1893 To Year=1997

	Precipitation											Total Snowfall		
	Mean	High	Year	Low	Year	1 Day Max.		>= 0.01 in.	>= 0.10 in.	>= 0.50 in.	>= 1.00 in.	Mean	High	Year
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	1.85	9.09	1995	0.00	1910	3.00	03/1917	6	5	1	0	5.7	44.0	1933
February	1.82	6.09	1962	0.00	1912	3.22	10/1978	6	4	1	0	3.0	21.0	1932
March	1.94	11.59	1983	0.00	1934	3.40	01/1983	7	5	1	0	6.4	39.0	1913
April	0.92	3.55	1967	0.00	1966	1.77	28/1951	5	3	0	0	2.0	33.0	1967
May	0.43	2.35	1977	0.00	1893	1.95	08/1977	2	1	0	0	0.3	7.0	1930
June	0.11	0.82	1993	0.00	1893	0.66	12/1963	1	0	0	0	0.0	0.0	1935
July	0.11	2.00	1913	0.00	1909	2.00	21/1913	1	0	0	0	0.0	0.0	1935
August	0.25	2.65	1983	0.00	1893	2.03	12/1931	1	1	0	0	0.0	0.0	1906
September	0.32	4.51	1932	0.00	1906	2.20	30/1932	1	1	0	0	0.0	2.0	1946
October	0.48	3.23	1945	0.00	1906	2.84	06/1945	2	1	0	0	0.0	0.5	1949
November	1.13	6.22	1970	0.00	1929	3.29	29/1970	4	3	1	0	1.6	13.0	1985
December	1.70	5.26	1951	0.00	1962	2.19	29/1964	6	4	1	0	4.3	25.5	1984
Annual	11.08	27.77	1983	4.30	1989	3.40	19830301	42	27	6	2	23.3	62.0	1967
Winter	5.37	14.74	1993	1.05	1961	3.22	19780210	18	13	3	1	12.9	66.0	1933
Spring	3.30	13.19	1983	0.18	1997	3.40	19830301	14	9	2	0	8.8	35.0	1967
Summer	0.48	2.93	1931	0.00	1912	2.03	19310812	2	1	0	0	0.0	0.0	1945
Fall	1.93	7.11	1932	0.02	1977	3.29	19701129	7	4	1	0	1.6	13.0	1985

Table updated on Mar 24, 2011
For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons
Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May
Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

Western Regional Climate Center, wrcc@dri.edu

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1961 - 1990

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- Precipitation Probability by Quantity.
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  - Monthly Totals

Snowfall
- Daily Extreme and Average
- Daily Average
- Monthly Snowfall Listings
  - Monthly Totals

TEHACHAPI, CALIFORNIA

Period of Record General Climate Summary - Temperature

Station:(048826) TEHACHAPI

From Year=1893 To Year=1997

	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	51.3	29.6	40.5	75	04/1893	-4	14/1932	48.4	1986	27.7	1949	0.0	0.6	20.0	0.0
February	54.0	31.6	42.8	78	10/1951	4	05/1946	48.8	1995	36.1	1933	0.0	0.2	16.0	0.0
March	56.0	33.5	44.7	81	24/1956	9	02/1953	54.1	1934	38.7	1935	0.0	0.1	13.9	0.0
April	62.6	37.5	49.9	89	19/1950	17	12/1965	56.7	1989	40.2	1967	0.0	0.0	7.2	0.0
May	70.6	43.8	57.2	97	28/1933	26	06/1988	62.9	1997	50.4	1933	0.7	0.0	1.5	0.0
June	79.7	51.5	65.6	104	19/1946	29	03/1967	75.6	1946	58.8	1965	4.5	0.0	0.0	0.0
July	87.1	57.2	72.1	105	27/1934	36	05/1948	77.9	1931	66.7	1947	11.2	0.0	0.0	0.0
August	86.3	54.9	70.6	104	13/1933	34	23/1947	75.5	1967	65.6	1976	10.1	0.0	0.0	0.0
September	80.4	48.1	64.2	102	03/1950	22	17/1946	69.4	1974	49.3	1946	4.4	0.0	0.6	0.0
October	70.8	40.7	55.8	96	03/1980	17	31/1935	62.0	1988	50.6	1969	0.2	0.0	3.7	0.0
November	59.6	34.4	47.0	85	17/1932	6	17/1958	54.0	1949	40.0	1994	0.0	0.0	12.5	0.0
December	52.3	30.4	41.3	81	03/1958	-4	21/1967	49.1	1958	34.3	1971	0.0	0.5	19.4	0.0
Annual	67.6	41.1	54.3	105	19340727	-4	19320114	56.1	1980	52.4	1893	31.1	1.5	94.8	0.1
Winter	52.5	30.5	41.5	81	19581203	-4	19320114	46.5	1981	33.5	1949	0.0	1.3	55.4	0.1
Spring	63.1	38.3	50.6	97	19330528	9	19530302	54.6	1931	46.7	1893	0.7	0.1	22.6	0.0
Summer	84.4	54.5	69.4	105	19340727	29	19670603	73.7	1981	65.5	1947	25.8	0.0	0.0	0.0
Fall	70.2	41.1	55.7	102	19500903	6	19581117	59.6	1995	47.6	1946	4.6	0.0	16.8	0.0

Table updated on Mar 24, 2011
For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons
Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May
Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

Western Regional Climate Center, wrcc@dri.edu

Appendix B

CARB Data

Air Resources Board

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Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

Arvin-Bear Mountain Blvd

FAQs

Year:	2008		2009		2010	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Oct 15	0.033	Aug 10	0.051	Jul 20	0.032
Second High:	Jun 12	0.032	Aug 19	0.045	Aug 25	0.031
Third High:	Apr 2	0.031	Apr 22	0.035	Mar 18	0.029
Fourth High:	Apr 18	0.031	Aug 28	0.035	Jun 18	0.028
# Days Above State Standard:		0		0		0
Annual Average:		0.006		0.005		0.005
Year Coverage:		81		94		90

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes:

All averages are expressed in parts per million.

National exceedances are shown in orange. State exceedances are shown in yellow.

An exceedance is not necessarily a violation.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM2.5 | PM10 | Carbon Monoxide | Sulfur Dioxide | Hydrogen Sulfide

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Air Resources Board

iADAM

Highest 4 Daily Maximum 8-Hour Ozone Averages

Mojave-923 Poole Street

FAQs

Year:	2008		2009		2010	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National:						
First High:	Jul 10	0.102	Aug 18	0.084	Jun 23	0.083
Second High:	Jul 8	0.097	May 26	0.083	Jun 28	0.080
Third High:	Aug 28	0.094	Jun 27	0.083	Jul 30	0.078
Fourth High:	Jul 9	0.093	Jun 28	0.083	Jun 27	0.075
California:						
First High:	Jul 10	0.103	May 26	0.084	Jun 23	0.084
Second High:	Jul 8	0.098	Jun 28	0.084	Jun 28	0.080
Third High:	Jul 9	0.094	Aug 11	0.084	Jul 30	0.078
Fourth High:	Jul 24	0.094	Aug 18	0.084	Sep 2	0.076
National:						
# Days Above '08 Nat'l Std.:		41		32		3
'08 Nat'l Std. Design Value:		0.086		0.084		0.083
National Year Coverage:		85		99		94
California:						
# Days Above State Standard:		60		61		21
California Designation Value:		0.098		0.094		0.094
Expected Peak Day Conc.:		0.100		0.097		0.097
California Year Coverage:		84		99		94

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes:

All averages are expressed in parts per million.

National exceedances are shown in **orange**. State exceedances are shown in **yellow**.

An exceedance is not necessarily a violation.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Air Resources Board

iADAM

Highest 4 Daily Maximum 8-Hour Carbon Monoxide Averages

Bakersfield-Golden State Highway

FAQs

Year:	2008		2009		2010	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National:						
First High:	Feb 8	2.17	Dec 3	1.51	Jan 1	1.34
Second High:	Jan 19	2.13	Nov 18	1.49	Jan 4	0.76
Third High:	May 25	1.76	Jan 15	1.44	Jan 2	0.75
Fourth High:	Mar 18	1.73	Jan 11	1.43	Jan 2	0.56
California:						
First High:	Feb 8	2.17	Dec 2	1.51	Jan 1	1.46
Second High:	Jan 18	2.13	Nov 17	1.49	Jan 3	0.76
Third High:	May 25	1.76	Jan 14	1.44	Jan 2	0.75
Fourth High:	Mar 17	1.73	Jan 10	1.43	Jan 4	0.55
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		0		0		0
Year Coverage:		88		94		3

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes:

All averages are expressed in parts per million.

National exceedances are shown in orange. State exceedances are shown in yellow.

An exceedance is not necessarily a violation.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM2.5 | PM10 | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Air Resources Board

iADAM

Highest 4 Daily 24-Hour PM10 Averages

Mojave-923 Poole Street

FAQs

Year:	2008		2009		2010	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Oct 9	154.0	Oct 28	68.0	Oct 17	52.8
Second High:	Apr 30	111.9	Oct 4	45.8	Jun 10	38.8
Third High:	May 12	49.7	Aug 29	33.9	Sep 29	35.5
Fourth High:	Jun 11	48.4	Aug 20	30.6	Sep 5	33.8
California:						
First High:	Oct 9	144.8	Oct 28	67.0	Oct 17	49.0
Second High:	Apr 30	104.2	Oct 4	42.5	Jun 10	36.1
Third High:	May 12	45.9	Aug 29	30.5	Sep 29	31.8
Fourth High:	Jun 11	43.1	Sep 4	27.6	Jun 29	29.7
Measured:						
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		2		1		0
Estimated:						
3-Yr Avg # Days Above Nat'l Std:		0.0		0.0		0.0
# Days Above Nat'l Standard:		0.0		0.0		0.0
# Days Above State Standard:		13.0		*		*
State 3-Yr Maximum Average:		22		22		22
State Annual Average:		22.3		*		*
National 3-Year Average:		*23*		*21*		*19*
National Annual Average:		*24.4*		*16.5*		*16.2*
Year Coverage:		95		91		86

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes:

All concentrations are expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics*.

National exceedances are shown in orange. State exceedances are shown in yellow.

An exceedance is not necessarily a violation.

Statistics may include data that are related to an exceptional event.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on *local* conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on *local* conditions). National statistics are based on *standard* conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* There was insufficient (or no) data available to determine the value.

Air Resources Board

iADAM

Highest 4 Daily 24-Hour PM2.5 Averages

Mojave-923 Poole Street

FAQs

Year:	2008		2009		2010	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Jul 11	19.1	Aug 29	12.7	Apr 26	10.0
Second High:	Jun 23	17.8	Aug 11	11.2	Sep 29	9.0
Third High:	Nov 20	15.8	Aug 17	11.1	Apr 14	8.8
Fourth High:	Mar 1	15.2	Mar 20	9.9	Jul 25	8.3
California:						
First High:	Jul 11	19.1	Aug 29	12.7	Apr 26	10.0
Second High:	Jun 23	17.8	Aug 11	11.2	Sep 29	9.0
Third High:	Nov 20	15.8	Aug 17	11.1	Apr 14	8.8
Fourth High:	Mar 1	15.2	Mar 20	9.9	Jul 25	8.3
Estimated Days > Nat'l 24-Hr Std:		0.0		0.0		*
Measured Days > Nat'l 24-Hr Std:		0		0		0
Nat'l 24-Hr Std Design Value:		*		16		*
Nat'l 24-Hr Std 98th Percentile:		17.8		11.2		*
National Annual Std Design Value:		*		6.1		*
National Annual Average:		6.8		5.1		*
State Ann'l Std Designation Value:		*		5		5
State Annual Average:		*		5.2		*
Year Coverage:		90		91		90

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes:

All concentrations are expressed in micrograms per cubic meter.

National exceedances are shown in orange. State exceedances are shown in yellow.

An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

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* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Air Resources Board

iADAM

Highest 4 Daily Maximum Hourly Ozone Measurements

Mojave-923 Poole Street

FAQs

Year:	2008		2009		2010	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jul 10	0.112	Aug 18	0.101	Jun 28	0.092
Second High:	Jul 9	0.109	Aug 19	0.098	Jun 23	0.088
Third High:	Jul 25	0.109	Jul 1	0.096	Jul 9	0.088
Fourth High:	Jul 8	0.105	Jul 17	0.094	Sep 17	0.088
# Days Above State Standard:		15		3		0
California Designation Value:		0.11		0.11		0.11
Expected Peak Day Conc.:		0.110		0.106		0.105
# Days Above Nat'l Standard:		*0*		*0*		*0*
National Design Value:		*0.109*		*0.105*		*0.105*
Year Coverage:		86		99		96

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes:

All concentrations are expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics*.

State exceedances are shown in yellow. Exceedances of the revoked national 1-hour standard are shown in *orange*.

An exceedance is not necessarily a violation.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* There was insufficient (or no) data available to determine the value.

Switch: 8-Hour Ozone | PM2.5 | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Appendix C

Construction Regional Emission Calculations

Banducci Project - Summary of Construction Emissions

EQUIPMENT [1]		Equipment Emissions (tons per year)			
		ROG	NOX	SOX	PM10
Construction Equipment Emissior					
Construction Equipment		0.84	6.77	0.01	0.32

WORKER VEHICLES			Worker Vehicle Emissions (ppd)				
	# of Workers	Total VMT/Day	ROG	NOX	SOX	PM10	CO2
Worker Vehicles Emissions	**50**	**1,330.00**	**0.23**	**0.54**	**0.010**	**0.113**	**1,113.235**
Cars	*25.0*	*665.00*	*0.09*	*0.18*	*0.004*	*0.05*	*493.96*
Trucks	*25.0*	*665.00*	*0.14*	*0.36*	*0.01*	*0.06*	*619.27*
Tons per Year			*0.03*	*0.07*	*0.001*	*0.01*	*133.59*

FUGITIVE DUST				
	Max Daily Grading	Grading Days	PM10	PM2.5
Site Preparation [3]	2.0	30.0	65.435	7.115
Tons per Year			7.9	0.9

Asphalt Paving [4]					
	Total Acres to	Paving Days	Acres Paved Per Day	ROG/Acre	ROG (ppd)
Paving	0.457	18.00	0.025	2.62	**0.07**
Tons per Year					**0.01**

TOTAL EMISSIONS	Emissions (Tons per Year)			
	ROG	NOX	SOX	PM10
Regional Annual Construction Em	0.88	**6.83**	**0.01**	**8.18**
THRESHOLD	**25**	**25**	**27**	**15**
IMPACT?	no	no	no	no

[1] Construction equipments emissions are taken from Estimated Equipment Construction Spreadsheet.

[2] Water trucks would operate on site eight hours each day at a rate of 5 mph (compliance with Rule 403). Number of water trucks used and hours of operation are provided from project descriptions.

[3] Used CalEEMod equation for grading emission. PM pounds/day = (Emission Factor, pound/VMT) * (VMT, mile). VMT=acreage of grading site/ blade width of the grading equipment. CalEEMod uses a blade width of 12ft based on Caterpillar's 140 Motor Grader. Calculation Details for CalEEMod (Appendix A) assumed one grader can grade 0.5 acre/8-hr-day, one dozers can grade 0.5 acre/8-hr-day, and one scraper can grade 1.0 acre/8-hr day. Therefore, a total of 2.0 acres can be graded in an 8-hour working day.

[4] Used CalEEmod's asphalt paving calculations for ROG off-gasing emissions. Emissions = (Emission Factor, pound/acre) * (Area of the parking lot, acre). SMAQMD default emission factor is 2.62 lb/acre.

EMFAC2007 RATES (grams per mile)							
Vehicle Type	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**
Year 2014							
Haul Truck @ 30 MPH	0.873	4.203	9.189	0.017	0.416	0.348	1823.628
Workers Vehicle @30 MPH	0.059	1.697	0.124	0.003	0.033	0.018	337.233
Light-Duty Trucks @ 30MPH	0.097	2.523	0.247	0.004	0.044	0.028	422.78
Assumptions:							
Construction Year	2014						
Season	Annual						
Temperature	66°F						

EQUIPMENT EMISSION FACTORS (pounds per hour)								
YEAR 2014								
	ROG	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
Aerial Lifts	0.05	0.19	0.29	0.0004	0.018	0.017	34.7	0.0044
Air Compressors	0.08	0.33	0.56	0.0007	0.040	0.036	63.6	0.0076
Bore/Drill Rigs Composite	0.07	0.50	0.71	0.0017	0.025	0.023	165	0.0066
Cement and Mortar Mixers	0.01	0.04	0.05	0.0001	0.002	0.002	7.2	0.0008
Cranes	0.13	0.46	1.11	0.0014	0.047	0.043	129	0.0115
Crushing/Proc. Equipment Composite	0.16	0.67	1.09	0.0015	0.068	0.062	132.3	0.0144
Dumpers/Tenders	0.01	0.03	0.06	0.0001	0.003	0.002	7.6	0.0009
Excavators	0.11	0.53	0.83	0.0013	0.043	0.039	120	0.0103
Forklifts	0.05	0.22	0.36	0.0006	0.018	0.016	54.4	0.0045
Graders	0.14	0.60	1.08	0.0015	0.054	0.050	133	0.0123
Other Construction Equipment Composite	0.08	0.37	0.72	0.0013	0.030	0.027	122.6	0.0074
Pavers	0.14	0.53	0.81	0.0009	0.056	0.052	77.9	0.0129
Paving Equipment	0.11	0.43	0.73	0.0008	0.050	0.046	68.9	0.0098
Plate Compactors	0.01	0.03	0.03	0.0001	0.001	0.001	4.3	0.0005
Rubber Tired Dozers	0.29	1.11	2.39	0.0025	0.099	0.091	239	0.0257
Skid Steer Loaders	0.04	0.23	0.24	0.0004	0.015	0.014	30.3	0.0037
Tractors/Loaders/Backhoes	0.07	0.37	0.50	0.0008	0.034	0.031	66.8	0.0066

SOURCE: OFFROAD 2007

Banducci Substation Project - Construction Equipment Emissions

Banducci Project Estimated Equipment Construction Emissions

Equipment Type	Qty	Operating Hrs/WD/each	Operating Hours per Day	Rog Rate (lbs/hr)	Rog (lbs/day)	NOX rate (lbs/hr)	NOX (lbs/day)	SOX rate (lbs/hr)	SOX (lbs/day)	PM rate (lbs/hr)	PM (lbs/day)	PM10 (lbs/day)
Banducci Substaion Construction												
Survey - 5 Work Days												
Survey Trucks	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.1184	0.1184
Survey Emissions Total (lbs)					**1.64**		**14.34**		**0.03**		**0.5920**	**0.5920**
Grading - 20 Work Days												
Dozer	1	8	8	0.2854	2.28	2.3867	19.09	0.0025	0.02	0.10	0.7944	0.7944
Loader	2	8	16	0.1122	1.80	0.8620	13.79	0.0012	0.02	0.0461	0.74	0.7376
Scraper	1	8	8	0.2648	2.12	2.2371	17.90	0.0027	0.02	0.0928	0.74	0.7424
Grader	1	8	8	0.1362	1.09	1.0796	8.64	0.0015	0.01	0.0539	0.43	0.4312
Water Truck	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
4 X 4 Tamper	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Tool Truck	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Pick-up Truck	4	2	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Grading Emissions Total (lbs)					**178.53**		**1475.10**		**1.98**			**65.95**
Fencing (Chain Link) - 10 Work Days												
Bobcat	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Flatbed Truck	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Crew Cab Truck	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
Fencing Emissions Total (lbs)					**10.74**		**82.82**		**0.14**			**4.50**
Civil - 76 Work Days												
Excavator	1	8	8	0.1143	0.91	0.8299	6.64	0.0013	0.01	0.0428	0.34	0.3424
Foundation Auger	1	4	4	0.0729	0.29	0.7136	2.85	0.0017	0.01	0.0248	0.10	0.0992
Backhoe	2	8	16	0.0728	1.16	0.4977	7.96	0.0008	0.01	0.0341	0.55	0.5456
Dump Truck	1	4	4	0.0095	0.04	0.0595	0.24	0.0001	0.00	0.0027	0.01	0.0108
Skip Loader	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Water Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Bobcat Skid Steer	2	8	16	0.0406	0.65	0.2369	3.79	0.0004	0.01	0.0152	0.24	0.2432
Forklift	1	4	4	0.0497	0.20	0.3551	1.42	0.0006	0.00	0.0178	0.07	0.0712
17 Ton Crane	1	4	4	0.1276	0.51	1.1066	4.43	0.0014	0.01	0.0466	0.19	0.1864
Tool Truck	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Pick-up Truck	4	2	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Civil Emissions Total (lbs)					**455.24**		**3469.37**		**5.87**			**179.63**
MEER (Not Pre-Built) - 5 Work Days												
Pick-up Truck	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Stake Truck	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
17 Ton Crane	1	4	4	0.1276	0.51	1.1066	4.43	0.0014	0.01	0.0466	0.19	0.1864
MEER Emissions Total (lbs)					**5.01**		**43.64**		**0.07**			**1.82**
Electrical - 66 Work Days												
Scissor Lifts	1	4	4	0.0483	0.19	0.2867	1.15	0.0004	0.00	0.0184	0.07	0.0736
Manlift	2	4	8	0.0483	0.39	0.2867	2.29	0.0004	0.00	0.0184	0.15	0.1472
Reach Forklift	1	2	2	0.0497	0.10	0.3551	0.71	0.0006	0.00	0.0178	0.04	0.0356
15 Ton Crane (Line Truck)	1	4	4	0.1276	0.51	1.1066	4.43	0.0014	0.01	0.0466	0.19	0.1864
Tool Trailer	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Crew Truck	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
70 Ton Crane	1	4	4	0.1276	0.51	1.1066	4.43	0.0014	0.01	0.0466	0.19	0.1864
Electrical Emissions Total (lbs)					**177.13**		**1425.93**		**2.16**			**64.97**
Wiring - 44 Work Days												
Manlift	1	2	2	0.0483	0.10	0.2867	0.57	0.0004	0.00	0.0044	0.01	0.0088
Tool Trailer	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Wiring Emissions Total (lbs)					**33.11**		**277.54**		**0.49**			**10.81**
Transformers - 5 Work Days												
Crew Truck	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Low Bed Truck	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
Transformers Emissions Total (lbs)					**2.46**		**21.50**		**0.04**			**0.89**
Maintenance Crew Equipment Check - 22 Work Days												
Maintenance Truck	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Maintenance Crew Equipment Check Emissions Total (lbs)					**7.22**		**63.08**		**0.11**			**2.60**
Testing - 88 Work Days												
Crew Truck/Van	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
Testing Emissions Total (lbs)					**14.43**		**126.16**		**0.23**			**5.21**
Asphalting - 10 Work Days												
Paving Roller	1	4	4	0.1429	0.57	0.8112	3.24	0.0009	0.00	0.0564	0.23	0.2256
Asphalt Paver	1	4	4	0.1082	0.43	0.7312	2.92	0.0008	0.00	0.0502	0.20	0.2008
Stake Truck	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
Tractor	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Dump Truck	1	4	4	0.0095	0.04	0.0595	0.24	0.0001	0.00	0.0027	0.01	0.0108
Crew Trucks	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Asphalt Curb Machine	1	2	2	0.1082	0.22	0.7312	1.46	0.0008	0.00	0.0502	0.10	0.1004
Asphalting Emissions Total (lbs)					**23.33**		**161.52**		**0.23**			**9.88**
Landscaping - 5 Work Days												
Tractor	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Dump Truck	1	4	4	0.0095	0.04	0.0595	0.24	0.0001	0.00	0.0027	0.01	0.0108
Pick-up Truck	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
Landscaping Emissions Total (lbs)					**3.92**		**28.27**		**0.05**			**1.71**
Banducci Substation Construction Total Emissions (Tons per Year)					**0.46**		**3.59**		**0.01**			**0.17**
Distribution Getaway Construction												
Civil - 8 Work Days												
Backhoe / Front Loader	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Dump Truck	1	4	4	0.0095	0.04	0.0595	0.24	0.0001	0.00	0.0027	0.01	0.0108
1 Ton Crew Truck	1	2	2	0.0820	0.16	0.7168	1.43	0.0013	0.00	0.0296	0.06	0.0592
Cement Truck	1	4	4	0.0089	0.04	0.0550	0.22	0.0001	0.00	0.0025	0.01	0.0100
Paving Roller	1	4	4	0.1429	0.57	0.8112	3.24	0.0009	0.00	0.0564	0.23	0.2256
Asphalt Paver	1	4	4	0.1082	0.43	0.7312	2.92	0.0008	0.00	0.0502	0.20	0.2008
Grinder	1	4	4	0.1597	0.64	1.0867	4.35	0.0015	0.01	0.0677	0.27	0.2708
Civil Emissions Total (lbs)					**19.71**		**131.12**		**0.18**			**8.40**
Vault Delivery - 2 Work Days												
4 Ton Truck with Crane	1	4	4	0.1276	0.51	1.1066	4.43	0.0014	0.01	0.0466	0.19	0.1864
Vault Delivery Emissions Total (lbs)					**1.02**		**8.85**		**0.01**			**0.37**
Cable Pulling - 8 Work Days												
Rodder Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Cable Carousel	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
1 Ton Crew Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Cable Pulling Emissions Total (lbs)					**15.74**		**137.63**		**0.25**			**5.68**
Cable Splicing - 8 Work Days												
Line Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Crew Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Cable Splicing Emissions Total (lbs)					**10.50**		**91.75**		**0.17**			**3.79**
Distribution Getaway Construction Total Emissions (Tons per Year)					**0.02**		**0.18**		**0.0003**			**0.01**
Subtransmission Construction												
Survey - 1 Work Day												
1 Ton Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Survey Emissions Total (lbs)					**0.66**		**5.73**		**0.01**			**0.24**
Marshalling Yard - Duration of Project												
1 Ton Truck	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
R/T Fork Lift	1	6	6	0.0497	0.30	0.3551	2.13	0.0006	0.00	0.0178	0.11	0.1068
Boom Crane Truck	1	2	2	0.1276	0.26	1.1066	2.21	0.0014	0.00	0.0466	0.09	0.0932
Water Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Semi Tractor Truck	1	2	2	0.0728	0.15	0.4977	1.00	0.0008	0.00	0.0341	0.07	0.0682
Marshalling Yard Emissions Total (lbs)					**403.92**		**3345.79**		**5.66**			**149.62**

Right of Way Clearing - 1 Work Day												
1 Ton Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Backhoe / Front Loader	1	6	6	0.0728	0.44	0.4977	2.99	0.0008	0.00	0.0341	0.20	0.2046
Track Type Dozer	1	6	6	0.2854	1.71	2.3867	14.32	0.0025	0.02	0.0993	0.60	0.5958
Motor Grader	1	6	6	0.1362	0.82	1.0796	6.48	0.0015	0.01	0.0539	0.32	0.3234
Water Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Lowboy Truck / Trailer	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Right of Way Clearing Emissions Total (lbs)					**4.61**		**38.12**		**0.05**			**1.72**
Roads & Landing Work - 1 Work Day												
1 Ton Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Backhoe/Front Loader	1	4	4	0.0728	0.29	0.4977	1.99	0.0008	0.00	0.0341	0.14	0.1364
Track Type Dozer	1	4	4	0.2854	1.14	2.3867	9.55	0.0025	0.01	0.0993	0.40	0.3972
Motor Grader	1	6	6	0.1362	0.82	1.0796	6.48	0.0015	0.01	0.0539	0.32	0.3234
Water Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Drum Type Compactor	1	6	6	0.0050	0.03	0.0314	0.19	0.0001	0.00	0.0012	0.01	0.0072
Excavator	1	4	4	0.1143	0.46	0.8299	3.32	0.0013	0.01	0.0428	0.17	0.1712
Lowboy Truck / Trailer	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Roads & Landing Work Emissions Total (lbs)					**4.38**		**35.86**		**0.05**			**1.63**
Removal of Existing Conductor - 1 Work Day												
1 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Manlift / Bucket Truck	2	8	16	0.0483	0.77	0.2867	4.59	0.0004	0.01	0.0184	0.29	0.2944
Boom Crane Truck	2	8	16	0.1276	2.04	1.1066	17.71	0.0014	0.02	0.0466	0.75	0.7456
Bull Wheel Puller	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Sock Line Puller	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Static Truck / Tensioner	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Lowboy Truck / Trailer	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Removal of Existing Conductor Emissions Total (lbs)					**5.60**		**46.66**		**0.07**			**2.05**
Wood Pole Removal - 1 Work Day												
1 Ton Truck	2	8	16	0.0820	1.31	0.7168	11.47	0.0013	0.02	0.0296	0.47	0.4736
Compressor Trailer	1	4	4	0.0842	0.34	0.5635	2.25	0.0007	0.00	0.0396	0.16	0.1584
Manlift / Bucket Truck	1	6	6	0.0483	0.29	0.2867	1.72	0.0004	0.00	0.0184	0.11	0.1104
Boom Crane Truck	1	6	6	0.1276	0.77	1.1066	6.64	0.0014	0.01	0.0466	0.28	0.2796
Flat Bed Pole Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Wood Pole Removal Emissions Total (lbs)					**3.36**		**27.82**		**0.04**			**1.26**
Install TSP Foundations - 8 Work Days												
3/4 Ton Truck	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Boom Crane Truck	1	4	4	0.1276	0.51	1.1066	4.43	0.0014	0.01	0.0466	0.19	0.1864
Backhoe / Front Loader	1	6	6	0.0728	0.44	0.4977	2.99	0.0008	0.00	0.0341	0.20	0.2046
Auger Truck	1	6	6	0.0729	0.44	0.7136	4.28	0.0017	0.01	0.0248	0.15	0.1488
Water Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Dump Truck	1	4	4	0.0095	0.04	0.0595	0.24	0.0001	0.00	0.0027	0.01	0.0108
Concrete Mixer Truck	3	4	12	0.0089	0.11	0.0550	0.66	0.0001	0.00	0.0025	0.03	0.0300
Install TSP Foundations Emissions Total (lbs)					**20.11**		**169.55**		**0.30**			**7.49**
TSP Haul - 4 Work Days												
3/4 Ton Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Boom Crane Truck	1	6	6	0.1276	0.77	1.1066	6.64	0.0014	0.01	0.0466	0.28	0.2796
Flat Bed Pole Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
TSP Haul Emissions Total (lbs)					**8.31**		**72.43**		**0.12**			**3.01**
TSP Assembly - 4 Work Days												
3/4 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
1 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Compressor Trailer	1	6	6	0.0842	0.51	0.5635	3.38	0.0007	0.00	0.0396	0.24	0.2376
Boom Crane Truck	1	8	8	0.1276	1.02	1.1066	8.85	0.0014	0.01	0.0466	0.37	0.3728
TSP Assembly Emissions Total (lbs)					**11.35**		**94.81**		**0.14**			**4.34**
TSK Erection - 4 Work Days												
3/4 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
1 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Compressor Trailer	1	4	4	0.0842	0.34	0.5635	2.25	0.0007	0.00	0.0396	0.16	0.1584
Boom Crane Truck	1	8	8	0.1276	1.02	1.1066	8.85	0.0014	0.01	0.0466	0.37	0.3728
TSK Erection Emissions Total (lbs)					**10.68**		**90.30**		**0.14**			**4.02**
Wood / LWS Haul - 1 Work Day												
3/4 Ton Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Boom Crane Truck	1	6	6	0.1276	0.77	1.1066	6.64	0.0014	0.01	0.0466	0.28	0.2796
Flat Bed Pole Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Wood / LSW Pole Assembly Emissions Total (lbs)					**2.08**		**18.11**		**0.03**			**0.75**
Wood / LSW Pole Assembly- 1 Work Day												
3/4 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
1 Tone Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Compressor Trailer	1	6	6	0.0842	0.51	0.5635	3.38	0.0007	0.00	0.0396	0.24	0.2376
Boom Crane Truck	1	8	8	0.1276	1.02	1.1066	8.85	0.0014	0.01	0.0466	0.37	0.3728
Wood / LSW Pole Assembly Emissions Total (lbs)					**2.84**		**23.70**		**0.04**			**1.08**
Install Wood / LSW Pole - 1 Work Day												
1 Ton Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Manlift / Bucket Truck	1	6	6	0.0483	0.29	0.2867	1.72	0.0004	0.00	0.0184	0.11	0.1104
Boom Crane Truck	1	6	6	0.1276	0.77	1.1066	6.64	0.0014	0.01	0.0466	0.28	0.2796
Auger Truck	1	4	4	0.0729	0.29	0.7136	2.85	0.0017	0.01	0.0248	0.10	0.0992
Backhoe / Front Loader	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Extendable Flat Bed Pole Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Install Wood / LSW Pole Emissions Total (lbs)					**3.24**		**26.66**		**0.04**			**1.24**
Install / Transfer Conductor - 1 Work Day												
1 Ton Truck	3	4	12	0.0820	0.98	0.7168	8.60	0.0013	0.02	0.0296	0.36	0.3552
Manlift / Bucket Truck	4	8	32	0.0483	1.55	0.2867	9.17	0.0004	0.01	0.0184	0.59	0.5888
Boom Crane Truck	1	8	8	0.1276	1.02	1.1066	8.85	0.0014	0.01	0.0466	0.37	0.3728
Dump Truck	1	2	2	0.0095	0.02	0.0595	0.12	0.0001	0.00	0.0027	0.01	0.0054
Wire Truck / Trailer	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Sock Line Puller	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Bull Wheel Puller	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Static Truck / Tensioner	1	6	6	0.0820	0.49	0.7168	4.30	0.0013	0.01	0.0296	0.18	0.1776
Backhoe / Front Loader	1	2	2	0.0728	0.15	0.4977	1.00	0.0008	0.00	0.0341	0.07	0.0682
Lowboy Truck / Trailer	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Install / Transfer Conductor Emissions Total (lbs)					**6.34**		**50.68**		**0.08**			**2.34**
Restoration - 1 Work Day												
1 Ton Truck	2	4	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Backhoe / Front Loader	1	4	4	0.0728	0.29	0.4977	1.99	0.0008	0.00	0.0341	0.14	0.1364
Motor Grader	1	6	6	0.1362	0.82	1.0796	6.48	0.0015	0.01	0.0539	0.32	0.3234
Water Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Drum Type Compactor	1	8	8	0.0050	0.04	0.0314	0.25	0.0001	0.00	0.0012	0.01	0.0096
Lowboy Truck / Trailer	1	4	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Restoration Emissions Total (lbs)					**2.79**		**23.06**		**0.04**			**1.06**
Subtransmission Construction Total Emissions (Tons per Year)					**0.25**		**2.03**		**0.003**			**0.09**
Telecommunications Construction	1	4	4									
Telecom Construction Inside MEER - 30 Work Days												
Pick-up Truck	3	6	18	0.0820	1.48	0.7168	12.90	0.0013	0.02	0.0296	0.53	0.5328
Telecom Construction Inside MEER Emissions Total (lbs)					**44.28**		**387.07**		**0.70**			**15.98**
Substructure Installation - 34 Work Days												
Backhoe	1	8	8	0.0728	0.58	0.4977	3.98	0.0008	0.01	0.0341	0.27	0.2728
Dump Truck	1	8	8	0.0095	0.08	0.0595	0.48	0.0001	0.00	0.0027	0.02	0.0216
Cement Truck	1	8	8	0.0089	0.07	0.0550	0.44	0.0001	0.00	0.0025	0.02	0.0200
Substructure Installation Emissions Total (lbs)					**24.81**		**166.52**		**0.27**		**10.69**	**10.69**
Wood Pole Replacement and Transfer Facilities - 35 Work Days												
1 Ton Truck	2	2	4	0.0820	0.33	0.7168	2.87	0.0013	0.01	0.0296	0.12	0.1184
Double Bucket Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Boom Truck	1	8	8	0.0820	0.66	0.7168	5.73	0.0013	0.01	0.0296	0.24	0.2368
Wood Pole Replacement and Transfer Facilities Emissions Total (lbs)					**57.40**		**501.76**		**0.91**			**20.72**
Fiber Optic Cable Installation - 62 Work Days												
Pick-up Truck	2	8	16	0.0820	1.31	0.7168	11.47	0.0013	0.02	0.0296	0.47	0.4736
Manlift / Bucket Truck	1	8	8	0.0483	0.39	0.2867	2.29	0.0004	0.00	0.0184	0.15	0.1472
Fiber Optic Cable Installation Emissions Total (lbs)					**105.30**		**853.27**		**1.49**		**38.49**	**38.49**
Telecommunications Construction Total Emissions (Tons per Year)					**0.12**		**0.95**		**0.002**			**0.04**
Proposed Project Construction Emissions (Tons per Year)					**0.84**		**6.77**		**0.01**			**0.32**

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

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Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Total Organic Gases Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.264	0.408	0.621	8.812	5.214	5.244	2.271
30	0.059	0.097	0.142	0.873	1.123	2.259	0.287

Pollutant Name: Carbon Monoxide Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	2.905	4.624	5.845	16.318	32.943	26.999	7.049
30	1.697	2.523	2.645	4.203	7.006	17.074	2.812

Pollutant Name: Oxides of Nitrogen Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.203	0.417	0.910	23.102	24.040	1.015	5.340
30	0.124	0.247	0.565	9.189	11.352	0.990	2.200

Pollutant Name: Carbon Dioxide Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	942.950	1172.766	1693.059	3561.897	2596.381	256.412	1672.723
30	337.233	422.780	572.726	1823.628	2053.092	138.672	714.847

Pollutant Name: Sulfur Dioxide Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.016	0.034	0.025	0.003	0.016
30	0.003	0.004	0.006	0.017	0.020	0.002	0.007

Pollutant Name: PM2.5 Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.055	0.103	0.112	1.348	0.559	0.030	0.356
30	0.011	0.021	0.024	0.329	0.157	0.014	0.084

Pollutant Name: PM2.5 - Tire Wear Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.008	0.002	0.001	0.003
30	0.002	0.002	0.002	0.008	0.002	0.001	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.011	0.005	0.003	0.007
30	0.005	0.005	0.005	0.011	0.005	0.003	0.007

Pollutant Name: Gasoline - mi/gal Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.344	7.419	5.043	3.375	3.302	28.175	8.174
30	26.071	20.695	15.216	14.953	14.655	51.449	22.611

Pollutant Name: Diesel - mi/gal Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	28.294	29.076	19.533	3.030	3.835	0.000	4.483
30	28.294	29.076	19.533	5.385	3.835	0.000	6.653

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

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Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Total Organic Gases Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.047	0.069	0.131	0.306	0.303	1.088	0.112
10	0.083	0.115	0.237	0.442	0.590	1.218	0.179
20	0.150	0.202	0.435	0.696	1.118	1.481	0.305
30	0.211	0.281	0.615	0.927	1.585	1.748	0.419
40	0.266	0.353	0.778	1.134	1.990	2.019	0.524

50	0.316	0.418	0.924	1.317	2.334	2.293	0.617
60	0.358	0.473	1.050	1.460	2.617	2.476	0.695
120	0.477	0.607	1.327	1.436	2.715	2.512	0.842
180	0.433	0.562	1.302	1.529	2.881	2.524	0.816
240	0.459	0.596	1.380	1.620	3.042	2.695	0.865
300	0.484	0.629	1.457	1.708	3.197	2.864	0.914
360	0.509	0.662	1.532	1.794	3.347	3.031	0.961
420	0.533	0.694	1.605	1.877	3.492	3.195	1.007
480	0.557	0.725	1.677	1.958	3.631	3.357	1.052
540	0.581	0.755	1.748	2.036	3.765	3.517	1.096
600	0.604	0.785	1.817	2.112	3.894	3.674	1.139
660	0.627	0.815	1.885	2.186	4.018	3.829	1.181
720	0.649	0.844	1.951	2.257	4.137	3.981	1.223

Pollutant Name: Carbon Monoxide Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.479	0.712	1.385	3.763	3.478	4.053	1.136
10	0.878	1.264	2.544	5.833	6.813	4.435	1.929
20	1.637	2.314	4.741	9.728	13.061	5.192	3.434
30	2.346	3.291	6.778	13.296	18.744	5.937	4.828
40	3.005	4.196	8.654	16.537	23.862	6.673	6.112
50	3.613	5.028	10.370	19.451	28.414	7.398	7.284
60	4.170	5.788	11.925	22.039	32.401	8.112	8.346
120	6.018	8.010	14.921	22.159	32.781	11.299	10.426
180	5.073	6.922	13.785	23.363	33.739	10.973	9.614
240	5.418	7.376	14.609	24.526	34.729	12.381	10.201
300	5.730	7.790	15.368	25.647	35.751	13.654	10.743
360	6.011	8.164	16.060	26.726	36.804	14.793	11.241
420	6.259	8.498	16.687	27.763	37.889	15.797	11.693
480	6.474	8.792	17.248	28.759	39.005	16.667	12.100
540	6.657	9.046	17.743	29.713	40.153	17.403	12.463
600	6.807	9.260	18.172	30.625	41.332	18.004	12.780
660	6.925	9.434	18.535	31.495	42.543	18.470	13.053
720	7.011	9.567	18.833	32.324	43.786	18.802	13.281

Pollutant Name: Oxides of Nitrogen Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.173	0.275	0.882	0.447	1.164	0.187	0.403
10	0.194	0.309	1.004	0.665	1.754	0.222	0.472
20	0.232	0.370	1.221	1.049	2.790	0.283	0.595
30	0.263	0.421	1.401	1.362	3.634	0.335	0.696
40	0.287	0.461	1.544	1.604	4.286	0.376	0.776
50	0.306	0.491	1.650	1.775	4.747	0.407	0.835
60	0.318	0.511	1.719	1.876	5.015	0.427	0.872
120	0.337	0.542	1.816	1.895	5.067	0.432	0.913
180	0.342	0.549	1.820	1.888	5.048	0.427	0.917
240	0.340	0.545	1.808	1.876	5.020	0.418	0.911
300	0.336	0.538	1.788	1.861	4.982	0.407	0.901
360	0.331	0.530	1.762	1.842	4.934	0.394	0.888
420	0.324	0.520	1.729	1.819	4.876	0.378	0.872
480	0.316	0.507	1.689	1.792	4.808	0.360	0.853
540	0.307	0.492	1.642	1.761	4.730	0.341	0.831
600	0.296	0.475	1.589	1.726	4.643	0.318	0.806
660	0.284	0.456	1.529	1.688	4.546	0.294	0.777
720	0.271	0.435	1.462	1.646	4.439	0.267	0.745

Pollutant Name: Carbon Dioxide Temperature: 66F Relative Humidity: ALL

Time

min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.459	14.153	19.074	4.589	2.464	18.988	13.491
10	13.370	16.567	22.955	6.790	4.914	21.388	16.061
20	17.616	21.902	31.369	11.145	9.772	26.084	21.650
30	22.424	27.913	40.651	15.439	14.576	30.639	27.838
40	27.796	34.601	50.801	19.672	19.326	35.053	34.626
50	33.732	41.964	61.818	23.843	24.021	39.326	42.012
60	40.230	50.004	73.704	27.953	28.661	43.459	49.998
120	88.907	109.610	157.549	45.877	48.747	62.294	106.949
180	101.368	124.961	180.281	53.029	57.591	65.424	122.099
240	113.687	140.122	202.606	59.759	65.912	68.371	136.999
300	125.864	155.093	224.526	66.067	73.712	71.136	151.652
360	137.898	169.874	246.039	71.954	80.990	73.717	166.056
420	149.791	184.465	267.146	77.418	87.745	76.117	180.211
480	161.542	198.866	287.846	82.461	93.979	78.333	194.118
540	173.150	213.077	308.141	87.082	99.691	80.367	207.777
600	184.617	227.099	328.029	91.281	104.881	82.219	221.187
660	195.942	240.930	347.512	95.058	109.548	83.888	234.349
720	207.124	254.572	366.588	98.414	113.694	85.374	247.263

Pollutant Name: Sulfur Dioxide Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.001	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.001	0.001	0.001	0.001
60	0.000	0.001	0.001	0.001	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.001	0.001	0.001
240	0.001	0.001	0.002	0.001	0.001	0.001	0.001
300	0.001	0.002	0.002	0.001	0.001	0.001	0.002
360	0.001	0.002	0.003	0.001	0.001	0.001	0.002
420	0.002	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.002	0.001	0.002
540	0.002	0.002	0.003	0.001	0.002	0.001	0.002
600	0.002	0.002	0.003	0.001	0.002	0.001	0.002
660	0.002	0.002	0.004	0.001	0.002	0.001	0.002
720	0.002	0.003	0.004	0.001	0.002	0.001	0.003

Pollutant Name: PM2.5 Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.000	0.000	0.008	0.001
10	0.001	0.002	0.002	0.001	0.001	0.007	0.002
20	0.002	0.005	0.004	0.001	0.002	0.006	0.003
30	0.004	0.007	0.006	0.002	0.002	0.004	0.005
40	0.005	0.009	0.007	0.002	0.003	0.004	0.006
50	0.006	0.010	0.009	0.002	0.003	0.003	0.007
60	0.006	0.012	0.010	0.003	0.004	0.003	0.008
120	0.010	0.019	0.015	0.004	0.005	0.006	0.013
180	0.011	0.020	0.016	0.004	0.005	0.009	0.014
240	0.012	0.022	0.018	0.004	0.006	0.011	0.015
300	0.013	0.023	0.019	0.004	0.006	0.014	0.016
360	0.013	0.025	0.019	0.004	0.006	0.016	0.017
420	0.014	0.026	0.020	0.004	0.006	0.017	0.018
480	0.014	0.027	0.021	0.005	0.006	0.019	0.019
540	0.015	0.027	0.022	0.005	0.006	0.020	0.019
600	0.015	0.028	0.022	0.005	0.007	0.020	0.019
660	0.015	0.028	0.022	0.005	0.007	0.021	0.020

720	0.015	0.028	0.023	0.005	0.007	0.021	0.020

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern
****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Total Organic Gases Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.048	0.053	0.030	0.007	0.047	0.098	0.042
10	0.088	0.099	0.056	0.012	0.087	0.182	0.077
20	0.150	0.169	0.096	0.021	0.148	0.315	0.132
30	0.194	0.218	0.125	0.028	0.189	0.410	0.170
40	0.210	0.237	0.136	0.030	0.205	0.448	0.184

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern
****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
66	0.078	0.094	0.064	0.002	0.003	0.247	0.082

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 5b: Multi-Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
66	0.006	0.007	0.005	0.000	0.001	0.023	0.007

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 6a: Partial Day Resting Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
66	0.035	0.043	0.031	0.001	0.001	0.082	0.037

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

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Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL

66	0.003	0.003	0.002	0.000	0.000	0.008	0.003

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern
****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 7: Estimated Travel Fractions

Pollutant Name: | Temperature: ALL Relative Humidity: ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.346	0.280	0.143	0.216	0.001	0.013	1.000
%TRIP	0.362	0.282	0.245	0.099	0.000	0.012	1.000
%VEH	0.409	0.320	0.154	0.075	0.000	0.043	1.000

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:50:39
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern
****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Total Organic Gases | Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.019	0.362	0.291	0.047	0.613	0.023	0.161
2	0.018	0.187	0.151	0.025	0.317	0.060	0.087
3	0.020	0.130	0.106	0.018	0.219	0.079	0.064
4	0.023	0.104	0.085	0.014	0.171	0.090	0.053
5	0.024	0.088	0.072	0.012	0.143	0.097	0.047
10	0.028	0.058	0.049	0.008	0.086	0.112	0.036
15	0.030	0.051	0.043	0.006	0.069	0.118	0.034
20	0.031	0.049	0.042	0.006	0.061	0.122	0.033
25	0.031	0.048	0.042	0.005	0.057	0.124	0.033
30	0.031	0.048	0.042	0.005	0.057	0.124	0.033
35	0.031	0.048	0.041	0.005	0.057	0.124	0.033
40	0.031	0.048	0.041	0.005	0.057	0.124	0.033
45	0.031	0.048	0.041	0.005	0.057	0.124	0.033
50	0.031	0.048	0.041	0.005	0.057	0.124	0.033
55	0.030	0.048	0.041	0.005	0.057	0.123	0.033

60	0.030	0.048	0.041	0.005	0.057	0.122	0.033

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Total Organic Gases Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.264	0.408	0.621	8.812	5.214	5.244	2.271
30	0.059	0.097	0.142	0.873	1.123	2.259	0.287

Pollutant Name: Carbon Monoxide Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	2.905	4.624	5.845	16.318	32.943	26.999	7.049
30	1.697	2.523	2.645	4.203	7.006	17.074	2.812

Pollutant Name: Oxides of Nitrogen Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.203	0.417	0.910	23.102	24.040	1.015	5.340
30	0.124	0.247	0.565	9.189	11.352	0.990	2.200

Pollutant Name: Carbon Dioxide Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	942.950	1172.766	1693.059	3561.897	2596.381	256.412	1672.723
30	337.233	422.780	572.726	1823.628	2053.092	138.672	714.847

Pollutant Name: Sulfur Dioxide Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.016	0.034	0.025	0.003	0.016
30	0.003	0.004	0.006	0.017	0.020	0.002	0.007

Pollutant Name: PM10 Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.059	0.111	0.121	1.465	0.607	0.039	0.386
30	0.012	0.023	0.026	0.357	0.170	0.019	0.092

Pollutant Name: PM10 - Tire Wear Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.008	0.008	0.009	0.033	0.009	0.004	0.013
30	0.008	0.008	0.009	0.033	0.009	0.004	0.013

Pollutant Name: PM10 - Brake Wear Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.013	0.013	0.013	0.026	0.013	0.006	0.015
30	0.013	0.013	0.013	0.026	0.013	0.006	0.015

Pollutant Name: Gasoline - mi/gal Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.344	7.419	5.043	3.375	3.302	28.175	8.174
30	26.071	20.695	15.216	14.953	14.655	51.449	22.611

Pollutant Name: Diesel - mi/gal Temperature: 66F Relative Humidity: 78%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	28.294	29.076	19.533	3.030	3.835	0.000	4.483
30	28.294	29.076	19.533	5.385	3.835	0.000	6.653

Title : Banducci Project Construction Emission Rates for Year 2014
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Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

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Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Total Organic Gases Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.047	0.069	0.131	0.306	0.303	1.088	0.112
10	0.083	0.115	0.237	0.442	0.590	1.218	0.179
20	0.150	0.202	0.435	0.696	1.118	1.481	0.305
30	0.211	0.281	0.615	0.927	1.585	1.748	0.419
40	0.266	0.353	0.778	1.134	1.990	2.019	0.524

50	0.316	0.418	0.924	1.317	2.334	2.293	0.617
60	0.358	0.473	1.050	1.460	2.617	2.476	0.695
120	0.477	0.607	1.327	1.436	2.715	2.512	0.842
180	0.433	0.562	1.302	1.529	2.881	2.524	0.816
240	0.459	0.596	1.380	1.620	3.042	2.695	0.865
300	0.484	0.629	1.457	1.708	3.197	2.864	0.914
360	0.509	0.662	1.532	1.794	3.347	3.031	0.961
420	0.533	0.694	1.605	1.877	3.492	3.195	1.007
480	0.557	0.725	1.677	1.958	3.631	3.357	1.052
540	0.581	0.755	1.748	2.036	3.765	3.517	1.096
600	0.604	0.785	1.817	2.112	3.894	3.674	1.139
660	0.627	0.815	1.885	2.186	4.018	3.829	1.181
720	0.649	0.844	1.951	2.257	4.137	3.981	1.223

Pollutant Name: Carbon Monoxide Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.479	0.712	1.385	3.763	3.478	4.053	1.136
10	0.878	1.264	2.544	5.833	6.813	4.435	1.929
20	1.637	2.314	4.741	9.728	13.061	5.192	3.434
30	2.346	3.291	6.778	13.296	18.744	5.937	4.828
40	3.005	4.196	8.654	16.537	23.862	6.673	6.112
50	3.613	5.028	10.370	19.451	28.414	7.398	7.284
60	4.170	5.788	11.925	22.039	32.401	8.112	8.346
120	6.018	8.010	14.921	22.159	32.781	11.299	10.426
180	5.073	6.922	13.785	23.363	33.739	10.973	9.614
240	5.418	7.376	14.609	24.526	34.729	12.381	10.201
300	5.730	7.790	15.368	25.647	35.751	13.654	10.743
360	6.011	8.164	16.060	26.726	36.804	14.793	11.241
420	6.259	8.498	16.687	27.763	37.889	15.797	11.693
480	6.474	8.792	17.248	28.759	39.005	16.667	12.100
540	6.657	9.046	17.743	29.713	40.153	17.403	12.463
600	6.807	9.260	18.172	30.625	41.332	18.004	12.780
660	6.925	9.434	18.535	31.495	42.543	18.470	13.053
720	7.011	9.567	18.833	32.324	43.786	18.802	13.281

Pollutant Name: Oxides of Nitrogen Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.173	0.275	0.882	0.447	1.164	0.187	0.403
10	0.194	0.309	1.004	0.665	1.754	0.222	0.472
20	0.232	0.370	1.221	1.049	2.790	0.283	0.595
30	0.263	0.421	1.401	1.362	3.634	0.335	0.696
40	0.287	0.461	1.544	1.604	4.286	0.376	0.776
50	0.306	0.491	1.650	1.775	4.747	0.407	0.835
60	0.318	0.511	1.719	1.876	5.015	0.427	0.872
120	0.337	0.542	1.816	1.895	5.067	0.432	0.913
180	0.342	0.549	1.820	1.888	5.048	0.427	0.917
240	0.340	0.545	1.808	1.876	5.020	0.418	0.911
300	0.336	0.538	1.788	1.861	4.982	0.407	0.901
360	0.331	0.530	1.762	1.842	4.934	0.394	0.888
420	0.324	0.520	1.729	1.819	4.876	0.378	0.872
480	0.316	0.507	1.689	1.792	4.808	0.360	0.853
540	0.307	0.492	1.642	1.761	4.730	0.341	0.831
600	0.296	0.475	1.589	1.726	4.643	0.318	0.806
660	0.284	0.456	1.529	1.688	4.546	0.294	0.777
720	0.271	0.435	1.462	1.646	4.439	0.267	0.745

Pollutant Name: Carbon Dioxide Temperature: 66F Relative Humidity: ALL

Time

min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.459	14.153	19.074	4.589	2.464	18.988	13.491
10	13.370	16.567	22.955	6.790	4.914	21.388	16.061
20	17.616	21.902	31.369	11.145	9.772	26.084	21.650
30	22.424	27.913	40.651	15.439	14.576	30.639	27.838
40	27.796	34.601	50.801	19.672	19.326	35.053	34.626
50	33.732	41.964	61.818	23.843	24.021	39.326	42.012
60	40.230	50.004	73.704	27.953	28.661	43.459	49.998
120	88.907	109.610	157.549	45.877	48.747	62.294	106.949
180	101.368	124.961	180.281	53.029	57.591	65.424	122.099
240	113.687	140.122	202.606	59.759	65.912	68.371	136.999
300	125.864	155.093	224.526	66.067	73.712	71.136	151.652
360	137.898	169.874	246.039	71.954	80.990	73.717	166.056
420	149.791	184.465	267.146	77.418	87.745	76.117	180.211
480	161.542	198.866	287.846	82.461	93.979	78.333	194.118
540	173.150	213.077	308.141	87.082	99.691	80.367	207.777
600	184.617	227.099	328.029	91.281	104.881	82.219	221.187
660	195.942	240.930	347.512	95.058	109.548	83.888	234.349
720	207.124	254.572	366.588	98.414	113.694	85.374	247.263

Pollutant Name: Sulfur Dioxide Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.001	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.001	0.001	0.001	0.001
60	0.000	0.001	0.001	0.001	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.001	0.001	0.001
240	0.001	0.001	0.002	0.001	0.001	0.001	0.001
300	0.001	0.002	0.002	0.001	0.001	0.001	0.002
360	0.001	0.002	0.003	0.001	0.001	0.001	0.002
420	0.002	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.002	0.001	0.002
540	0.002	0.002	0.003	0.001	0.002	0.001	0.002
600	0.002	0.002	0.003	0.001	0.002	0.001	0.002
660	0.002	0.002	0.004	0.001	0.002	0.001	0.002
720	0.002	0.003	0.004	0.001	0.002	0.001	0.003

Pollutant Name: PM10 Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.000	0.000	0.010	0.001
10	0.001	0.003	0.002	0.001	0.001	0.009	0.002
20	0.003	0.005	0.004	0.001	0.002	0.007	0.004
30	0.004	0.007	0.006	0.002	0.002	0.006	0.005
40	0.005	0.009	0.008	0.002	0.003	0.005	0.007
50	0.006	0.011	0.009	0.003	0.004	0.004	0.008
60	0.007	0.013	0.011	0.003	0.004	0.003	0.009
120	0.011	0.020	0.016	0.004	0.006	0.008	0.014
180	0.012	0.022	0.018	0.004	0.006	0.011	0.015
240	0.013	0.024	0.019	0.004	0.006	0.015	0.017
300	0.014	0.025	0.020	0.005	0.006	0.018	0.018
360	0.014	0.027	0.021	0.005	0.006	0.020	0.019
420	0.015	0.028	0.022	0.005	0.006	0.023	0.019
480	0.016	0.029	0.023	0.005	0.007	0.024	0.020
540	0.016	0.029	0.023	0.005	0.007	0.026	0.021
600	0.016	0.030	0.024	0.005	0.007	0.027	0.021
660	0.017	0.030	0.024	0.006	0.007	0.027	0.021

720	0.017	0.031	0.024	0.006	0.007	0.028	0.022

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Area : Kern
****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Total Organic Gases Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.048	0.053	0.030	0.007	0.047	0.098	0.042
10	0.088	0.099	0.056	0.012	0.087	0.182	0.077
20	0.150	0.169	0.096	0.021	0.148	0.315	0.132
30	0.194	0.218	0.125	0.028	0.189	0.410	0.170
40	0.210	0.237	0.136	0.030	0.205	0.448	0.184

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern
****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
66	0.078	0.094	0.064	0.002	0.003	0.247	0.082

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 5b: Multi-Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases | Temperature: ALL | Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
66	0.006	0.007	0.005	0.000	0.001	0.023	0.007

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 6a: Partial Day Resting Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases | Temperature: ALL | Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
66	0.035	0.043	0.031	0.001	0.001	0.082	0.037

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases | Temperature: ALL | Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL

66	0.003	0.003	0.002	0.000	0.000	0.008	0.003

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 7: Estimated Travel Fractions

Pollutant Name: | Temperature: ALL Relative Humidity: ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.346	0.280	0.143	0.216	0.001	0.013	1.000
%TRIP	0.362	0.282	0.245	0.099	0.000	0.012	1.000
%VEH	0.409	0.320	0.154	0.075	0.000	0.043	1.000

Title : Banducci Project Construction Emission Rates for Year 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 09:49:26
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Annual
Area : Kern

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average | Kern | County Average

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Total Organic Gases | Temperature: 66F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.019	0.362	0.291	0.047	0.613	0.023	0.161
2	0.018	0.187	0.151	0.025	0.317	0.060	0.087
3	0.020	0.130	0.106	0.018	0.219	0.079	0.064
4	0.023	0.104	0.085	0.014	0.171	0.090	0.053
5	0.024	0.088	0.072	0.012	0.143	0.097	0.047
10	0.028	0.058	0.049	0.008	0.086	0.112	0.036
15	0.030	0.051	0.043	0.006	0.069	0.118	0.034
20	0.031	0.049	0.042	0.006	0.061	0.122	0.033
25	0.031	0.048	0.042	0.005	0.057	0.124	0.033
30	0.031	0.048	0.042	0.005	0.057	0.124	0.033
35	0.031	0.048	0.041	0.005	0.057	0.124	0.033
40	0.031	0.048	0.041	0.005	0.057	0.124	0.033
45	0.031	0.048	0.041	0.005	0.057	0.124	0.033
50	0.031	0.048	0.041	0.005	0.057	0.124	0.033
55	0.030	0.048	0.041	0.005	0.057	0.123	0.033

60	0.030	0.048	0.041	0.005	0.057	0.122	0.033

Appendix D

Operational Emission Calculations

Operational

Motor Vehicle Usage

Locations		Number	Days Used Per Year	Travelled Per Day
Subtransmission Line Inspection		1	1	72
Substation Site Visit		1	156	60

Motor Vehicle Exhaust Emissions Factors for Operational Year 2016

			Emissions (pounds per mile) /a/							
Locations		**Vehicle Type**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
Subtransmission Line Inspection		Passenger	8.59803E-05	0.0032	0.0003	6.614E-06	7.2753E-05	3.968E-05	0.7393554	3.307E-05
Substation Site Visit		Passenger	8.59803E-05	0.0032	0.0003	6.614E-06	7.2753E-05	3.968E-05	0.7393554	3.307E-05

/a/ Emission Factors obtained from Emfac2007.

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions for Operational Year 2016

		Emissions (pounds per day) /a/							
Locations		**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
Subtransmission Line Inspection		0.00619058	0.231749915	0.0198416	0.000476	0.0052382	0.00285719	53.23359	0.002381
Substation Site Visit		0.005158817	0.193124929	0.0165347	0.000397	0.0043652	0.00238099	44.361325	0.0019842

/a/ Emissions [lb/day] = Number x Miles Travelled Per Day x Emission Factor [lb/mi]

Conversion of SF6 to CO2e:

E=L/100*M,SF6*23200*4.536*10^-4

E (metric tons CO2e per year) = GHG emissions from SF6 leakage

L (percent per year) = SF6 leakage rate . SCE estimated that gas leakage rate of the

M,SF6 (pounds) = Total weight of SF6 in new circuit breakers. For 5 circuit

23,200 = SF6 global warming potential

4.536*10^-4= Metric tons per pound conversion factor.

SF6 emissions (pounds)=	**0.775**
CO2e Emissions (metric tons per year)=	**8.1557**

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Methane | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.015	0.025	0.025	0.031	0.021	0.184	0.027

Pollutant Name: Carbon Monoxide | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	1.460	2.867	2.409	3.584	1.095	15.877	2.805

Pollutant Name: Oxides of Nitrogen | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.125	0.321	0.648	6.780	2.932	1.080	1.613

Pollutant Name: Carbon Dioxide | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	335.366	421.855	570.551	1812.631	1157.063	141.066	682.470

Pollutant Name: Sulfur Dioxide | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.003	0.004	0.006	0.017	0.011	0.002	0.007

Pollutant Name: PM2.5 | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.011	0.022	0.026	0.223	0.043	0.013	0.059

Pollutant Name: PM2.5 - Tire Wear | Temperature: 68F | Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.002	0.002	0.002	0.008	0.003	0.001	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 68F Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.005	0.005	0.005	0.011	0.005	0.003	0.007

Pollutant Name: Gasoline - mi/gal Temperature: 68F Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	26.239	20.695	15.241	14.930	15.559	51.365	23.302

Pollutant Name: Diesel - mi/gal Temperature: 68F Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	28.647	29.089	19.529	5.351	4.234	0.000	6.954

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average Kern County APCD

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Methane Temperature: 68F Relative Humidity: ALL

Time

min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.004	0.006	0.020	0.025	0.058	0.006
10	0.003	0.007	0.011	0.028	0.048	0.066	0.009
20	0.006	0.012	0.020	0.043	0.091	0.081	0.015
30	0.009	0.016	0.028	0.057	0.129	0.096	0.020
40	0.011	0.020	0.035	0.069	0.162	0.111	0.025
50	0.013	0.024	0.042	0.080	0.189	0.126	0.029
60	0.015	0.027	0.048	0.089	0.212	0.136	0.033
120	0.019	0.034	0.064	0.092	0.231	0.144	0.041
180	0.018	0.033	0.064	0.098	0.245	0.146	0.040
240	0.020	0.034	0.067	0.104	0.259	0.156	0.043
300	0.021	0.036	0.071	0.110	0.272	0.166	0.045
360	0.022	0.038	0.075	0.115	0.285	0.175	0.048
420	0.023	0.040	0.079	0.121	0.297	0.185	0.050
480	0.024	0.042	0.082	0.126	0.309	0.194	0.052
540	0.025	0.044	0.086	0.131	0.320	0.203	0.054

600	0.026	0.045	0.089	0.136	0.331	0.212	0.057
660	0.027	0.047	0.093	0.141	0.342	0.221	0.059
720	0.028	0.049	0.096	0.145	0.352	0.230	0.061

Pollutant Name: Carbon Monoxide Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.366	0.752	1.117	4.453	1.327	3.676	0.982
10	0.685	1.356	2.076	6.692	2.599	4.143	1.659
20	1.294	2.503	3.899	10.910	4.983	5.053	2.943
30	1.862	3.566	5.596	14.780	7.151	5.930	4.135
40	2.389	4.544	7.165	18.302	9.104	6.776	5.233
50	2.875	5.439	8.608	21.476	10.841	7.591	6.238
60	3.320	6.250	9.923	24.303	12.362	8.373	7.149
120	4.796	8.470	13.245	26.669	13.540	11.832	9.365
180	4.283	7.751	12.560	28.166	13.936	11.499	8.878
240	4.568	8.211	13.363	29.608	14.345	12.762	9.425
300	4.827	8.635	14.095	30.994	14.766	13.914	9.930
360	5.060	9.023	14.755	32.324	15.201	14.952	10.392
420	5.265	9.375	15.345	33.599	15.649	15.877	10.811
480	5.444	9.691	15.864	34.818	16.110	16.690	11.187
540	5.596	9.971	16.312	35.981	16.585	17.390	11.521
600	5.722	10.215	16.688	37.089	17.072	17.978	11.812
660	5.821	10.423	16.994	38.141	17.572	18.452	12.060
720	5.893	10.595	17.229	39.137	18.085	18.814	12.265

Pollutant Name: Oxides of Nitrogen Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.157	0.291	0.921	0.543	1.812	0.176	0.390
10	0.174	0.328	1.025	0.808	2.731	0.212	0.448
20	0.204	0.395	1.211	1.275	4.344	0.278	0.552
30	0.229	0.450	1.366	1.655	5.658	0.332	0.639
40	0.249	0.494	1.490	1.949	6.673	0.375	0.707
50	0.264	0.527	1.583	2.157	7.390	0.407	0.757
60	0.275	0.549	1.646	2.278	7.809	0.428	0.790
120	0.292	0.581	1.750	2.299	7.877	0.432	0.831
180	0.295	0.585	1.752	2.289	7.848	0.427	0.833
240	0.293	0.581	1.740	2.276	7.804	0.419	0.827
300	0.289	0.574	1.720	2.257	7.745	0.409	0.818
360	0.285	0.565	1.694	2.234	7.670	0.397	0.806
420	0.279	0.554	1.660	2.206	7.580	0.383	0.791
480	0.272	0.541	1.620	2.173	7.474	0.367	0.773
540	0.264	0.526	1.572	2.136	7.354	0.349	0.752
600	0.254	0.508	1.518	2.094	7.218	0.329	0.728
660	0.244	0.488	1.456	2.047	7.067	0.306	0.700
720	0.232	0.465	1.388	1.996	6.900	0.282	0.670

Pollutant Name: Carbon Dioxide Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.671	13.979	19.418	4.407	6.443	16.972	13.737
10	13.411	16.376	22.896	6.573	12.851	19.301	16.107
20	17.340	21.675	30.554	10.860	25.558	23.863	21.325
30	21.870	27.645	39.152	15.087	38.124	28.296	27.184
40	27.001	34.287	48.687	19.254	50.546	32.600	33.682
50	32.734	41.599	59.161	23.361	62.827	36.775	40.820
60	39.067	49.583	70.574	27.409	74.964	40.822	48.597
120	88.139	108.752	154.410	45.055	127.501	59.172	105.841

180	100.327	124.015	176.305	52.130	150.633	62.694	120.629
240	112.421	139.089	197.902	58.788	172.399	66.010	135.224
300	124.422	153.971	219.202	65.028	192.800	69.120	149.628
360	136.329	168.664	240.204	70.852	211.836	72.023	163.838
420	148.142	183.166	260.908	76.258	229.507	74.721	177.856
480	159.862	197.478	281.315	81.246	245.812	77.213	191.682
540	171.488	211.600	301.425	85.818	260.753	79.499	205.316
600	183.021	225.531	321.236	89.972	274.327	81.579	218.757
660	194.460	239.272	340.750	93.708	286.537	83.452	232.005
720	205.806	252.822	359.967	97.028	297.381	85.120	245.061

Pollutant Name: Sulfur Dioxide Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.001	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.001	0.001	0.001	0.001
60	0.000	0.001	0.001	0.001	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.002	0.001	0.001
180	0.001	0.001	0.002	0.001	0.002	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.003	0.001	0.002	0.001	0.002
420	0.002	0.002	0.003	0.001	0.003	0.001	0.002
480	0.002	0.002	0.003	0.001	0.003	0.001	0.002
540	0.002	0.002	0.003	0.001	0.003	0.001	0.002
600	0.002	0.002	0.003	0.001	0.003	0.001	0.002
660	0.002	0.002	0.004	0.002	0.003	0.001	0.002
720	0.002	0.003	0.004	0.002	0.003	0.001	0.003

Pollutant Name: PM2.5 Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.000	0.001	0.007	0.001
10	0.001	0.002	0.002	0.001	0.002	0.006	0.002
20	0.002	0.004	0.004	0.001	0.004	0.005	0.003
30	0.003	0.006	0.005	0.002	0.006	0.004	0.005
40	0.004	0.008	0.007	0.002	0.007	0.003	0.006
50	0.005	0.010	0.008	0.003	0.009	0.003	0.007
60	0.006	0.012	0.010	0.003	0.010	0.002	0.009
120	0.010	0.018	0.015	0.004	0.014	0.005	0.013
180	0.011	0.020	0.017	0.004	0.014	0.008	0.015
240	0.012	0.022	0.018	0.004	0.015	0.010	0.016
300	0.013	0.023	0.019	0.004	0.015	0.012	0.017
360	0.013	0.024	0.020	0.005	0.016	0.014	0.018
420	0.014	0.026	0.021	0.005	0.016	0.015	0.019
480	0.015	0.026	0.022	0.005	0.017	0.017	0.019
540	0.015	0.027	0.022	0.005	0.017	0.018	0.020
600	0.015	0.028	0.023	0.005	0.018	0.018	0.020
660	0.015	0.028	0.023	0.005	0.018	0.019	0.021
720	0.015	0.028	0.023	0.006	0.019	0.019	0.021

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Methane | Temperature: 68F | Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Methane | Temperature: ALL | Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 5b: Multi-Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average Kern County APCD

Table 6a: Partial Day Resting Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

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Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average Kern County APCD

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Methane Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

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Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 7: Estimated Travel Fractions

Pollutant Name: | Temperature: ALL | Relative Humidity: ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.343	0.317	0.112	0.202	0.001	0.025	1.000
%TRIP	0.368	0.336	0.213	0.064	0.000	0.020	1.000
%VEH	0.388	0.361	0.117	0.068	0.000	0.066	1.000

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:20:37
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

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Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Methane | Temperature: 68F | Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000
60	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Title   : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season   : Annual
Area   : Kern County APCD
****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.039	0.092	0.107	0.609	0.106	1.968	0.227

Pollutant Name: Carbon Monoxide | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	1.460	2.867	2.409	3.584	1.095	15.877	2.805

Pollutant Name: Oxides of Nitrogen | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.125	0.321	0.648	6.780	2.932	1.080	1.613

Pollutant Name: Carbon Dioxide | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	335.366	421.855	570.551	1812.631	1157.063	141.066	682.470

Pollutant Name: Sulfur Dioxide | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.003	0.004	0.006	0.017	0.011	0.002	0.007

Pollutant Name: PM10 | Temperature: 68F | Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.012	0.023	0.028	0.242	0.046	0.017	0.064

Pollutant Name: PM10 - Tire Wear | Temperature: 68F | Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.008	0.008	0.009	0.033	0.011	0.004	0.013

Pollutant Name: PM10 - Brake Wear Temperature: 68F Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	0.013	0.013	0.013	0.026	0.013	0.006	0.015

Pollutant Name: Gasoline - mi/gal Temperature: 68F Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	26.239	20.695	15.241	14.930	15.559	51.365	23.302

Pollutant Name: Diesel - mi/gal Temperature: 68F Relative Humidity: 50%

Speed

MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
30	28.647	29.089	19.529	5.351	4.234	0.000	6.954

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average Kern County APCD

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 68F Relative Humidity: ALL

Time

min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.032	0.065	0.100	0.308	0.436	0.859	0.092
10	0.058	0.113	0.185	0.452	0.849	0.992	0.147
20	0.106	0.201	0.343	0.721	1.609	1.255	0.251
30	0.151	0.281	0.489	0.965	2.281	1.513	0.346
40	0.191	0.353	0.621	1.183	2.865	1.766	0.432
50	0.226	0.417	0.739	1.375	3.360	2.016	0.509
60	0.257	0.471	0.843	1.526	3.767	2.187	0.573
120	0.344	0.592	1.128	1.589	4.098	2.339	0.713
180	0.326	0.572	1.125	1.691	4.348	2.359	0.707
240	0.345	0.606	1.192	1.791	4.591	2.514	0.749
300	0.364	0.640	1.259	1.888	4.825	2.668	0.791
360	0.383	0.672	1.325	1.982	5.051	2.818	0.831
420	0.401	0.704	1.389	2.073	5.270	2.966	0.871
480	0.419	0.735	1.452	2.162	5.480	3.112	0.910
540	0.437	0.765	1.515	2.248	5.683	3.255	0.949

600	0.454	0.795	1.576	2.331	5.878	3.395	0.986
660	0.471	0.824	1.636	2.412	6.064	3.533	1.022
720	0.487	0.852	1.694	2.490	6.243	3.668	1.058

Pollutant Name: Carbon Monoxide Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.366	0.752	1.117	4.453	1.327	3.676	0.982
10	0.685	1.356	2.076	6.692	2.599	4.143	1.659
20	1.294	2.503	3.899	10.910	4.983	5.053	2.943
30	1.862	3.566	5.596	14.780	7.151	5.930	4.135
40	2.389	4.544	7.165	18.302	9.104	6.776	5.233
50	2.875	5.439	8.608	21.476	10.841	7.591	6.238
60	3.320	6.250	9.923	24.303	12.362	8.373	7.149
120	4.796	8.470	13.245	26.669	13.540	11.832	9.365
180	4.283	7.751	12.560	28.166	13.936	11.499	8.878
240	4.568	8.211	13.363	29.608	14.345	12.762	9.425
300	4.827	8.635	14.095	30.994	14.766	13.914	9.930
360	5.060	9.023	14.755	32.324	15.201	14.952	10.392
420	5.265	9.375	15.345	33.599	15.649	15.877	10.811
480	5.444	9.691	15.864	34.818	16.110	16.690	11.187
540	5.596	9.971	16.312	35.981	16.585	17.390	11.521
600	5.722	10.215	16.688	37.089	17.072	17.978	11.812
660	5.821	10.423	16.994	38.141	17.572	18.452	12.060
720	5.893	10.595	17.229	39.137	18.085	18.814	12.265

Pollutant Name: Oxides of Nitrogen Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.157	0.291	0.921	0.543	1.812	0.176	0.390
10	0.174	0.328	1.025	0.808	2.731	0.212	0.448
20	0.204	0.395	1.211	1.275	4.344	0.278	0.552
30	0.229	0.450	1.366	1.655	5.658	0.332	0.639
40	0.249	0.494	1.490	1.949	6.673	0.375	0.707
50	0.264	0.527	1.583	2.157	7.390	0.407	0.757
60	0.275	0.549	1.646	2.278	7.809	0.428	0.790
120	0.292	0.581	1.750	2.299	7.877	0.432	0.831
180	0.295	0.585	1.752	2.289	7.848	0.427	0.833
240	0.293	0.581	1.740	2.276	7.804	0.419	0.827
300	0.289	0.574	1.720	2.257	7.745	0.409	0.818
360	0.285	0.565	1.694	2.234	7.670	0.397	0.806
420	0.279	0.554	1.660	2.206	7.580	0.383	0.791
480	0.272	0.541	1.620	2.173	7.474	0.367	0.773
540	0.264	0.526	1.572	2.136	7.354	0.349	0.752
600	0.254	0.508	1.518	2.094	7.218	0.329	0.728
660	0.244	0.488	1.456	2.047	7.067	0.306	0.700
720	0.232	0.465	1.388	1.996	6.900	0.282	0.670

Pollutant Name: Carbon Dioxide Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.671	13.979	19.418	4.407	6.443	16.972	13.737
10	13.411	16.376	22.896	6.573	12.851	19.301	16.107
20	17.340	21.675	30.554	10.860	25.558	23.863	21.325
30	21.870	27.645	39.152	15.087	38.124	28.296	27.184
40	27.001	34.287	48.687	19.254	50.546	32.600	33.682
50	32.734	41.599	59.161	23.361	62.827	36.775	40.820
60	39.067	49.583	70.574	27.409	74.964	40.822	48.597
120	88.139	108.752	154.410	45.055	127.501	59.172	105.841

180	100.327	124.015	176.305	52.130	150.633	62.694	120.629
240	112.421	139.089	197.902	58.788	172.399	66.010	135.224
300	124.422	153.971	219.202	65.028	192.800	69.120	149.628
360	136.329	168.664	240.204	70.852	211.836	72.023	163.838
420	148.142	183.166	260.908	76.258	229.507	74.721	177.856
480	159.862	197.478	281.315	81.246	245.812	77.213	191.682
540	171.488	211.600	301.425	85.818	260.753	79.499	205.316
600	183.021	225.531	321.236	89.972	274.327	81.579	218.757
660	194.460	239.272	340.750	93.708	286.537	83.452	232.005
720	205.806	252.822	359.967	97.028	297.381	85.120	245.061

Pollutant Name: Sulfur Dioxide Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.001	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.001	0.001	0.001	0.001
60	0.000	0.001	0.001	0.001	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.002	0.001	0.001
180	0.001	0.001	0.002	0.001	0.002	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.003	0.001	0.002	0.001	0.002
420	0.002	0.002	0.003	0.001	0.003	0.001	0.002
480	0.002	0.002	0.003	0.001	0.003	0.001	0.002
540	0.002	0.002	0.003	0.001	0.003	0.001	0.002
600	0.002	0.002	0.003	0.001	0.003	0.001	0.002
660	0.002	0.002	0.004	0.002	0.003	0.001	0.002
720	0.002	0.003	0.004	0.002	0.003	0.001	0.003

Pollutant Name: PM10 Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.000	0.001	0.009	0.001
10	0.001	0.002	0.002	0.001	0.002	0.008	0.002
20	0.003	0.005	0.004	0.001	0.004	0.006	0.004
30	0.004	0.007	0.006	0.002	0.006	0.005	0.005
40	0.005	0.009	0.007	0.002	0.008	0.004	0.007
50	0.006	0.011	0.009	0.003	0.010	0.003	0.008
60	0.007	0.013	0.010	0.003	0.011	0.003	0.009
120	0.011	0.020	0.016	0.004	0.015	0.007	0.015
180	0.012	0.022	0.018	0.004	0.015	0.010	0.016
240	0.013	0.024	0.019	0.005	0.016	0.013	0.017
300	0.014	0.025	0.021	0.005	0.016	0.016	0.018
360	0.014	0.026	0.022	0.005	0.017	0.018	0.019
420	0.015	0.028	0.023	0.005	0.017	0.020	0.020
480	0.016	0.029	0.023	0.005	0.018	0.022	0.021
540	0.016	0.029	0.024	0.006	0.018	0.023	0.022
600	0.016	0.030	0.025	0.006	0.019	0.024	0.022
660	0.017	0.030	0.025	0.006	0.019	0.024	0.022
720	0.017	0.030	0.025	0.006	0.020	0.025	0.023

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases | Temperature: 68F | Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.037	0.054	0.025	0.006	0.041	0.093	0.039
10	0.067	0.099	0.046	0.011	0.076	0.173	0.072
20	0.115	0.170	0.079	0.020	0.130	0.298	0.123
30	0.149	0.219	0.102	0.025	0.167	0.389	0.159
40	0.161	0.238	0.111	0.028	0.180	0.424	0.173

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Reactive Org Gases | Temperature: ALL | Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.058	0.102	0.055	0.004	0.002	0.257	0.083

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 5b: Multi-Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.005	0.008	0.004	0.000	0.000	0.024	0.007

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average Kern County APCD

Table 6a: Partial Day Resting Loss Emissions (grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.028	0.049	0.030	0.002	0.001	0.085	0.038

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average Kern County APCD

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
68	0.002	0.004	0.002	0.000	0.000	0.008	0.003

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006

Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 7: Estimated Travel Fractions

Pollutant Name: | Temperature: ALL Relative Humidity: ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.343	0.317	0.112	0.202	0.001	0.025	1.000
%TRIP	0.368	0.336	0.213	0.064	0.000	0.020	1.000
%VEH	0.388	0.361	0.117	0.068	0.000	0.066	1.000

Title : Banducci Substation Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2012/04/12 12:23:22
Scen Year: 2016 -- All model years in the range 1972 to 2016 selected
Season : Annual
Area : Kern County APCD

****

Year: 2016 -- Model Years 1972 to 2016 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average | District Average | Kern County APCD

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Reactive Org Gases | Temperature: 68F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.016	0.357	0.233	0.076	0.246	0.015	0.161
2	0.014	0.183	0.120	0.040	0.125	0.051	0.086
3	0.016	0.128	0.085	0.028	0.087	0.069	0.063
4	0.018	0.101	0.068	0.022	0.070	0.080	0.052
5	0.019	0.086	0.058	0.018	0.060	0.086	0.046
10	0.022	0.056	0.040	0.011	0.041	0.100	0.035
15	0.023	0.048	0.035	0.009	0.037	0.104	0.032
20	0.024	0.045	0.034	0.008	0.036	0.106	0.031
25	0.024	0.044	0.033	0.007	0.037	0.107	0.030
30	0.024	0.044	0.033	0.007	0.037	0.106	0.030
35	0.024	0.044	0.033	0.007	0.037	0.105	0.030
40	0.024	0.043	0.033	0.007	0.036	0.104	0.030
45	0.024	0.043	0.032	0.007	0.036	0.103	0.029
50	0.023	0.043	0.032	0.007	0.036	0.102	0.029
55	0.023	0.042	0.032	0.007	0.035	0.100	0.029
60	0.022	0.042	0.032	0.007	0.035	0.099	0.029

Appendix E

Greenhouse Gas Emission Calculations

Banducci Substation Project - Greenhouse Gas Emissions

Equipment Type	Qty	Operating Hrs/WD/each	Operating Hours per Day	CO2 Rate (lbs/hr)	CO2 (lbs/day)	CH4 rate (lbs/hr)	CH4 (lbs/day)
Banducci Substaion Construction							
Survey - 5 Work Days							
Survey Trucks	2	2	4	123	492	0.0074	0.03
Survey Emissions Total (lbs)					**2,460**		**0.1480**
Grading - 20 Work Days							
Dozer	1	8	8	239	1912	0.0257	0.21
Loader	2	8	16	109	1744	0.0101	0.16
Scraper	1	8	8	262	2096	0.0239	0.19
Grader	1	8	8	133	1064	0.0123	0.10
Water Truck	1	4	4	123.0	492	0.0074	0.03
4 X 4 Tamper	1	4	4	123	492	0.0074	0.03
Tool Truck	1	4	4	123	492	0.0074	0.03
Pick-up Truck	4	2	8	123	984	0.0074	0.06
Grading Emissions Total (lbs)					**185,520**		**16.10**
Fencing (Chain Link) - 10 Work Days							
Bobcat	1	8	8	66.8	534	0.0066	0.05
Flatbed Truck	1	4	4	123	492	0.0074	0.03
Crew Cab Truck	1	2	2	123	246	0.0074	0.01
Fencing Emissions Total (lbs)					**12,724**		**0.97**
Civil - 76 Work Days							
Excavator	1	8	8	120	960	0.0103	0.08
Foundation Auger	1	4	4	165.0	660	0.0066	0.03
Backhoe	2	8	16	67	1069	0.0066	0.11
Dump Truck	1	4	4	8	30	0.0009	0.00
Skip Loader	1	8	8	66.8	534	0.0066	0.05
Water Truck	1	8	8	123	984	0.0074	0.06
Bobcat Skid Steer	2	8	16	30.3	485	0.0037	0.06
Forklift	1	4	4	54	218	0.0045	0.02
17 Ton Crane	1	4	4	129	516	0.0115	0.05
Tool Truck	1	4	4	123	492	0.0074	0.03
Pick-up Truck	4	2	8	123	984	0.0074	0.06
Civil Emissions Total (lbs)					**526,832**		**41.19**
MEER (Not Pre-Built) - 5 Work Days							
Pick-up Truck	2	2	4	123	492	0.0074	0.03
Stake Truck	1	2	2	123	246	0.0074	0.01
17 Ton Crane	1	4	4	129	516	0.0115	0.05
MEER Emissions Total (lbs)					**6,270**		**0.45**
Electrical - 66 Work Days							
Scissor Lifts	1	4	4	34.7	139	0.0044	0.02
Manlift	2	4	8	34.7	278	0.0044	0.04
Reach Forklift	1	2	2	54.4	109	0.0045	0.01
15 Ton Crane (Line Truck)	1	4	4	129	516	0.0115	0.05
Tool Trailer	1	8	8	123	984	0.0074	0.06
Crew Truck	2	2	4	123	492	0.0074	0.03
70 Ton Crane	1	4	4	129	516	0.0115	0.05
Electrical Emissions Total (lbs)					**200,191**		**16.01**
Wiring - 44 Work Days							
Manlift	1	2	2	34.7	69	0.0044	0.01
Tool Trailer	1	8	8	123	984	0.0074	0.06
Wiring Emissions Total (lbs)					**46,350**		**2.99**
Transformers - 5 Work Days							
Crew Truck	2	2	4	123	492	0.0074	0.03
Low Bed Truck	1	2	2	123	246	0.0074	0.01
Transformers Emissions Total (lbs)					**3,690**		**0.22**
Maintenance Crew Equipment Check - 22 Work Days							
Maintenance Truck	2	2	4	123	492	0.0074	0.03
Maintenance Crew Equipment Check Emissions Total (lbs)					**10,824**		**0.65**
Testing - 88 Work Days							
Crew Truck/Van	1	2	2	123	246	0.0074	0.01
Testing Emissions Total (lbs)					**21,648**		**1.30**
Asphalting - 10 Work Days							
Paving Roller	1	4	4	77.9	312	0.0129	0.05
Asphalt Paver	1	4	4	68.9	276	0.0098	0.04
Stake Truck	1	2	2	123	246	0.0074	0.01
Tractor	1	8	8	66.8	534	0.0066	0.05
Dump Truck	1	4	4	7.6	30	0.0009	0.00
Crew Trucks	2	2	4	123	492	0.0074	0.03
Asphalt Curb Machine	1	2	2	68.9	138	0.0098	0.02
Asphalting Emissions Total (lbs)					**20,278**		**2.11**

Banducci Substation Project - Greenhouse Gas Emissions

Equipment Type	Qty	Operating Hrs/WD/each	Operating Hours per Day	CO2 Rate (lbs/hr)	CO2 (lbs/day)	CH4 rate (lbs/hr)	CH4 (lbs/day)
Landscaping - 5 Work Days							
Tractor	1	8	8	66.8	534	0.0066	0.05
Dump Truck	1	4	4	7.6	30	0.0009	0.00
Pick-up Truck	1	2	2	123	246	0.0074	0.01
Landscaping Emissions Total (lbs)					**4,054**		**0.36**
Banducci Substaion Construction Emissions (tons per year)					**520**		**0.04**
Distribution Getaway Construction							
Civil - 8 Work Days							
Backhoe / Front Loader	1	8	8	66.8	534	0.0066	0.05
Dump Truck	1	4	4	7.6	30	0.0009	0.00
1 Ton Crew Truck	1	2	2	123	246	0.0074	0.01
Cement Truck	1	4	4	7.2	29	0.0008	0.00
Paving Roller	1	4	4	77.9	312	0.0129	0.05
Asphalt Paver	1	4	4	68.9	276	0.0098	0.04
Grinder	1	4	4	132.0	528	0.0144	0.06
Civil Emissions Total (lbs)					**15,638**		**1.78**
Vault Delivery - 2 Work Days							
4 Ton Truck with Crane	1	4	4	129	516	0.0115	0.05
Vault Delivery Emissions Total (lbs)					**1,032**		**0.09**
Cable Pulling - 8 Work Days							
Rodder Truck	1	8	8	123	984	0.0074	0.06
Cable Carousel	1	8	8	123	984	0.0074	0.06
1 Ton Crew Truck	1	8	8	123	984	0.0074	0.06
Cable Pulling Emissions Total (lbs)					**23,616**		**1.42**
Cable Splicing - 8 Work Days							
Line Truck	1	8	8	123	984	0.0074	0.06
Crew Truck	1	8	8	123	984	0.0074	0.06
Cable Splicing Emissions Total (lbs)					**15,744**		**0.95**
Distribution Getaway Construction (tons per year)					**28**		**0.002**
Subtransmission Construction							
Survey - 1 Work Day							
1 Ton Truck	1	8	8	123	984	0.0074	0.06
Survey Emissions Total (lbs)					**984**		**0.06**
Marshalling Yard - Duration of Project							
1 Ton Truck	1	4	4	123	492	0.0074	0.03
R/T Fork Lift	1	6	6	54.4	326	0.0045	0.03
Boom Crane Truck	1	2	2	129	258	0.0115	0.02
Water Truck	1	8	8	123.0	984	0.0074	0.06
Semi Tractor Truck	1	2	2	66.8	134	0.0066	0.01
Marshalling Yard Emissions Total (lbs)					**526,560**		**36.48**
Right of Way Clearing - 1 Work Day							
1 Ton Truck	1	8	8	123	984	0.0074	0.06
Backhoe / Front Loader	1	6	6	66.8	401	0.0066	0.04
Track Type Dozer	1	6	6	239	1434	0.0257	0.15
Motor Grader	1	6	6	133	798	0.0123	0.07
Water Truck	1	8	8	123.0	984	0.0074	0.06
Lowboy Truck / Trailer	1	4	4	123	492	0.0074	0.03
Right of Way Clearing Emissions Total (lbs)					**5,093**		**0.42**
Roads & Landing Work - 1 Work Day							
1 Ton Truck	1	8	8	123	984	0.0074	0.06
Backhoe/Front Loader	1	4	4	66.8	267	0.0066	0.03
Track Type Dozer	1	4	4	239	956	0.0257	0.10
Motor Grader	1	6	6	133	798	0.0123	0.07
Water Truck	1	8	8	123.0	984	0.0074	0.06
Drum Type Compactor	1	6	6	4.3	26	0.0005	0.00
Excavator	1	4	4	120	480	0.0103	0.04
Lowboy Truck / Trailer	1	4	4	123	492	0.0074	0.03
Roads & Landing Work Emissions Total (lbs)					**4,987**		**0.40**

Banducci Substation Project - Greenhouse Gas Emissions

Equipment Type	Qty	Operating Hrs/WD/each	Operating Hours per Day	CO2 Rate (lbs/hr)	CO2 (lbs/day)	CH4 rate (lbs/hr)	CH4 (lbs/day)
Removal of Existing Conductor - 1 Work Day							
1 Ton Truck	2	4	8	123	984	0.0074	0.06
Manlift / Bucket Truck	2	8	16	34.7	555	0.0044	0.07
Boom Crane Truck	2	8	16	129.0	2064	0.0115	0.18
Bull Wheel Puller	1	6	6	123	738	0.0074	0.04
Sock Line Puller	1	6	6	123	738	0.0074	0.04
Static Truck / Tensioner	1	6	6	123	738	0.0074	0.04
Lowboy Truck / Trailer	2	4	8	123	984	0.0074	0.06
Removal of Existing Conductor Emissions Total (lbs)					**6,801**		**0.51**
Wood Pole Removal - 1 Work Day							
1 Ton Truck	2	8	16	123	1968	0.0074	0.12
Compressor Trailer	1	4	4	63.6	254	0.0076	0.03
Manlift / Bucket Truck	1	6	6	34.7	208	0.0044	0.03
Boom Crane Truck	1	6	6	129	774	0.0115	0.07
Flat Bed Pole Truck	1	8	8	123.0	984	0.0074	0.06
Wood Pole Removal Emissions Total (lbs)					**4,189**		**0.30**
Install TSP Foundations - 8 Work Days							
3/4 Ton Truck	1	4	4	123.0	492	0.0074	0.03
Boom Crane Truck	1	4	4	129.0	516	0.0115	0.05
Backhoe / Front Loader	1	6	6	67	401	0.0066	0.04
Auger Truck	1	6	6	165	990	0.0066	0.04
Water Truck	1	8	8	123	984	0.0074	0.06
Dump Truck	1	4	4	7.6	30	0.0009	0.00
Concrete Mixer Truck	3	4	12	7.2	86	0.0008	0.01
Install TSP Foundations Emissions Total (lbs)					**27,997**		**1.82**
TSP Haul - 4 Work Days							
3/4 Ton Truck	1	8	8	123	984	0.0074	0.06
Boom Crane Truck	1	6	6	129	774	0.0115	0.07
Flat Bed Pole Truck	1	8	8	123	984	0.0074	0.06
TSP Haul Emissions Total (lbs)					**10,968**		**0.75**
TSP Assembly - 4 Work Days							
3/4 Ton Truck	2	4	8	123	984	0.0074	0.06
1 Ton Truck	2	4	8	123	984	0.0074	0.06
Compressor Trailer	1	6	6	63.6	382	0.0076	0.05
Boom Crane Truck	1	8	8	129	1032	0.0115	0.09
TSP Assembly Emissions Total (lbs)					**13,526**		**1.02**
TSK Erection - 4 Work Days							
3/4 Ton Truck	2	4	8	123.0	984	0.0074	0.06
1 Ton Truck	2	4	8	123.0	984	0.0074	0.06
Compressor Trailer	1	4	4	63.6	254	0.0076	0.03
Boom Crane Truck	1	8	8	129	1032	0.0115	0.09
TSK Erection Emissions Total (lbs)					**13,018**		**0.96**
Wood / LWS Haul - 1 Work Day							
3/4 Ton Truck	1	8	8	123.0	984	0.0074	0.06
Boom Crane Truck	1	6	6	129	774	0.0115	0.07
Flat Bed Pole Truck	1	8	8	123.0	984	0.0074	0.06
Wood / LSW Pole Assembly Emissions Total (lbs)					**2,742**		**0.19**
Wood / LSW Pole Assembly- 1 Work Day							
3/4 Ton Truck	2	4	8	123.0	984	0.0074	0.06
1 Tone Truck	2	4	8	123.0	984	0.0074	0.06
Compressor Trailer	1	6	6	63.6	382	0.0076	0.05
Boom Crane Truck	1	8	8	129	1032	0.0115	0.09
Wood / LSW Pole Assembly Emissions Total (lbs)					**3,382**		**0.26**
Install Wood / LSW Pole - 1 Work Day							
1 Ton Truck	1	8	8	123.0	984	0.0074	0.06
Manlift / Bucket Truck	1	6	6	34.7	208	0.0044	0.03
Boom Crane Truck	1	6	6	129	774	0.0115	0.07
Auger Truck	1	4	4	165.0	660	0.0066	0.03
Backhoe / Front Loader	1	8	8	66.8	534	0.0066	0.05
Extendable Flat Bed Pole Truck	1	8	8	123.0	984	0.0074	0.06
Install Wood / LSW Pole Emissions Total (lbs)					**4,145**		**0.29**
Install / Transfer Conductor - 1 Work Day							
1 Ton Truck	3	4	12	123.0	1476	0.0074	0.09
Manlift / Bucket Truck	4	8	32	34.7	1110	0.0044	0.14
Boom Crane Truck	1	8	8	129	1032	0.0115	0.09
Dump Truck	1	2	2	7.6	15	0.0009	0.00
Wire Truck / Trailer	1	6	6	123.0	738	0.0074	0.04
Sock Line Puller	1	6	6	123.0	738	0.0074	0.04
Bull Wheel Puller	1	6	6	123.0	738	0.0074	0.04
Static Truck / Tensioner	1	6	6	123.0	738	0.0074	0.04
Backhoe / Front Loader	1	2	2	66.8	134	0.0066	0.01
Lowboy Truck / Trailer	2	4	8	123.0	984	0.0074	0.06
Install / Transfer Conductor Emissions Total (lbs)					**7,703**		**0.57**

Banducci Substation Project - Greenhouse Gas Emissions

Equipment Type	Qty	Operating Hrs/WD/each	Operating Hours per Day	CO2 Rate (lbs/hr)	CO2 (lbs/day)	CH4 rate (lbs/hr)	CH4 (lbs/day)
Restoration - 1 Work Day							
1 Ton Truck	2	4	8	123.0	984	0.0074	0.06
Backhoe / Front Loader	1	4	4	66.8	267	0.0066	0.03
Motor Grader	1	6	6	133	798	0.0123	0.07
Water Truck	1	8	8	123	984	0.0074	0.06
Drum Type Compactor	1	8	8	4.3	34	0.0005	0.00
Lowboy Truck / Trailer	1	4	4	123.0	492	0.0074	0.03
Restoration Emissions Total (lbs)					**3,560**		**0.25**
Subtransmission Construction (tons per year)					**318**		**0.02**
Telecommunications Construction	1	4	4				
Telecom Construction Inside MEER - 30 Work Days							
Pick-up Truck	3	6	18	123.0	2214	0.0074	0.13
Telecom Construction Inside MEER Emissions Total (lbs)					**66,420**		**4.00**
Substructure Installation - 34 Work Days							
Backhoe	1	8	8	66.8	534	0.0066	0.05
Dump Truck	1	8	8	7.6	61	0.0009	0.01
Cement Truck	1	8	8	7.2	58	0.0008	0.01
Substructure Installation Emissions Total (lbs)					**22,195**		**2**
Wood Pole Replacement and Transfer Facilities - 35 Work Days							
1 Ton Truck	2	2	4	123.0	492	0.0074	0.03
Double Bucket Truck	1	8	8	123.0	984	0.0074	0.06
Boom Truck	1	8	8	123.0	984	0.0074	0.06
Wood Pole Replacement and Transfer Facilities Emissions Total (lbs)					**86,100**		**5.18**
Fiber Optic Cable Installation - 62 Work Days							
Pick-up Truck	2	8	16	123.0	1968	0.0074	0.12
Manlift / Bucket Truck	1	8	8	34.7	278	0.0044	0.04
Fiber Optic Cable Installation Emissions Total (lbs)					**139,227**		**10**
Telecommunications Construction (tons per year)					**157**		**0.01**
Total Construction Equipments (tons per year)					**1,023**		**0.08**
Worker Vehicle Emissions Total (lbs)[1]					**1,113**		

[1] Worker vehicle and water truck emissions calculation are shown in the Summary of Construction Emissions Spreadsheet.

Greenhouse Gas Emissions Summary

Construction Phase	CO2e (Metric Tons per Year)
Banducci Substation Construction	521.84
Distribution Getaway Construction	28.06
Subtransmission Construction	318.29
Telecommunications Construction	157.19
Total Greenhouse Gas Emissions	**1025.39**

Greenhouse Gas Emissions

Conversion of SF6 to CO2e:

E=L/100*M,SF6*23200*4.536*10^-4

E (metric tons CO2e per year) = GHG emissions from SF6 leakage

L (percent per year) = SF6 leakage rate . SCE estimated that gas leakage rate of the circuit breakers shall not exceed 0.5 percent per year.

M,SF6 (pounds) = Total weight of SF6 in new circuit breakers. For 5 circuit breakers, it is estimated that the total weight of SF6 would be 155 pounds.

23,200 = SF6 global warming

4.536*10^-4= Metric tons per

SF6 emissions (pounds)=	**0.775**
CO2e Emissions (metric tons per	**8.1557**

Motor Vehicle Annual Greenhouse

	Emissions (metric tonne per year) /b/		
Locations	**CO2**	**CH4**	**CO2e /c/**
Subtransmission Line Inspection	0.02	0.0001	0.03
Substation Site Visit	0.97	0.0001	0.97
Total	**0.99**	**0.0001**	**0.99**

/a/Emissions were taken from operational emission calculations (see Appendix D, Operational Emission Calculations)

/b/ Emissions [MT/yr] = Emissions [lb/day] x Number x Days Used per Year x (1/2204.623, [MT/lb])

/c/ From the California Climate Action Registry General Reporting Protocol, CO2-equivalent (CO2e) emission factors are the sum of CO2 emissions and 21 times of CH4 emissions.

Appendix F

SCAMD Rule 403 – Fugitive Dust

(Adopted May 7, 1976) (Amended November 6, 1992)
(Amended July 9, 1993) (Amended February 14, 1997)
(Amended December 11, 1998)(Amended April 2, 2004)
(Amended June 3, 2005)

RULE 403. FUGITIVE DUST

(a) Purpose

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this Rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

(1) ACTIVE OPERATIONS means any source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement.

(2) AGGREGATE-RELATED PLANTS are defined as facilities that produce and / or mix sand and gravel and crushed stone.

(3) AGRICULTURAL HANDBOOK means the region-specific guidance document that has been approved by the Governing Board or hereafter approved by the Executive Officer and the U.S. EPA. For the South Coast Air Basin, the Board-approved region-specific guidance document is the Rule 403 Agricultural Handbook dated December 1998. For the Coachella Valley, the Board-approved region-specific guidance document is the Rule 403 Coachella Valley Agricultural Handbook dated April 2, 2004.

(4) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook.

(5) BEST AVAILABLE CONTROL MEASURES means fugitive dust control actions that are set forth in Table 1 of this Rule.

(6) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

(7) CEMENT MANUFACTURING FACILITY is any facility that has a cement kiln at the facility.

(8) CHEMICAL STABILIZERS are any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation. The chemical stabilizers shall meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(9) COMMERCIAL POULTRY RANCH means any building, structure, enclosure, or premises where more than 100 fowl are kept or maintained for the primary purpose of producing eggs or meat for sale or other distribution.

(10) CONFINED ANIMAL FACILITY means a source or group of sources of air pollution at an agricultural source for the raising of 3,360 or more fowl or 50 or more animals, including but not limited to, any structure, building, installation, farm, corral, coop, feed storage area, milking parlor, or system for the collection, storage, or distribution of solid and liquid manure; if domesticated animals, including horses, sheep, goats, swine, beef cattle, rabbits, chickens, turkeys, or ducks are corralled, penned, or otherwise caused to remain in restricted areas for commercial agricultural purposes and feeding is by means other than grazing.

(11) CONSTRUCTION/DEMOLITION ACTIVITIES means any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities: grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(12) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.

(13) DAIRY FARM is an operation on a property, or set of properties that are contiguous or separated only by a public right-of-way, that raises cows or

produces milk from cows for the purpose of making a profit or for a livelihood. Heifer and calf farms are dairy farms.

(14) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

(A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) been paved or otherwise covered by a permanent structure; or

(C) sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.

(15) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(16) EARTH-MOVING ACTIVITIES means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, weed abatement through disking, and soil mulching.

(17) DUST CONTROL SUPERVISOR means a person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.

(18) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.

(19) HIGH WIND CONDITIONS means that instantaneous wind speeds exceed 25 miles per hour.

(20) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of 20 consecutive days.

(21) LARGE OPERATIONS means any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic

meters (5,000 cubic yards) or more three times during the most recent 365-day period.

(22) OPEN STORAGE PILE is any accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.

(23) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

(24) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

(25) PM_{10} means particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(26) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

(27) RULE 403 IMPLEMENTATION HANDBOOK means a guidance document that has been approved by the Governing Board on April 2, 2004 or hereafter approved by the Executive Officer and the U.S. EPA.

(28) SERVICE ROADS are paved or unpaved roads that are used by one or more public agencies for inspection or maintenance of infrastructure and which are not typically used for construction-related activity.

(29) SIMULTANEOUS SAMPLING means the operation of two PM_{10} samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.

(30) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange

County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

(31) STABILIZED SURFACE means any previously disturbed surface area or open storage pile which, through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind-driven fugitive dust and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the Rule 403 Implementation Handbook.

(32) TRACK-OUT means any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(33) TYPICAL ROADWAY MATERIALS means concrete, asphaltic concrete, recycled asphalt, asphalt, or any other material of equivalent performance as determined by the Executive Officer, and the U.S. EPA.

(34) UNPAVED ROADS means any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by federal, state, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

(35) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(36) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.

(37) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.

(d) Requirements

(1) No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:

(A) the dust remains visible in the atmosphere beyond the property line of the emission source; or

(B) the dust emission exceeds 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook), if the dust emission is the result of movement of a motorized vehicle.

(2) No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of this Rule to minimize fugitive dust emissions from each fugitive dust source type within the active operation.

(3) No person shall cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. If sampling is conducted, samplers shall be:

(A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM_{10}.

(B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.

(4) No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.

(5) No person shall conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the measures listed in subparagraphs (d)(5)(A) through (d)(5)(E) at each vehicle egress from the site to a paved public road.

(A) Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.

(B) Pave the surface extending at least 100 feet and at least 20 feet wide.

(C) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

(D) Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

(E) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the actions specified in subparagraphs (d)(5)(A) through (d)(5)(D).

(6) Beginning January 1, 2006, any person who operates or authorizes the operation of a confined animal facility subject to this Rule shall implement the applicable conservation management practices specified in Table 4 of this Rule.

(e) Additional Requirements for Large Operations

(1) Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards can not be met through use of Table 2 actions; and shall:

(A) submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;

(B) include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;

(C) maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;

(D) install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;

(E) identify a dust control supervisor that:

(i) is employed by or contracted with the property owner or developer;

(ii) is on the site or available on-site within 30 minutes during working hours;

(iii) has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;

(iv) has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and

(F) notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).

(2) Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).

(f) Compliance Schedule

The newly amended provisions of this Rule shall become effective upon adoption. Pursuant to subdivision (e), any existing site that qualifies as a large operation will have 60 days from the date of Rule adoption to comply with the notification and recordkeeping requirements for large operations. Any Large Operation

Notification or AQMD-approved dust control plan which has been accepted prior to the date of adoption of these amendments shall remain in effect and the Large Operation Notification or AQMD-approved dust control plan annual resubmittal date shall be one year from adoption of this Rule amendment.

(g) Exemptions

(1) The provisions of this Rule shall not apply to:

(A) Dairy farms.

(B) Confined animal facilities provided that the combined disturbed surface area within one continuous property line is one acre or less.

(C) Agricultural vegetative crop operations provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(D) Agricultural vegetative crop operations within the South Coast Air Basin, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation management practices contained in the Rule 403 Agricultural Handbook;

(ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Agricultural Handbook; and

(iii) makes the completed self-monitoring form available to the Executive Officer upon request.

(E) Agricultural vegetative crop operations outside the South Coast Air Basin whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation management practices contained in the Rule 403 Coachella Valley Agricultural Handbook; and

(ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Coachella Valley Agricultural Handbook; and

(iii) makes the completed self-monitoring form available to the Executive Officer upon request.

(F) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

(G) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.

(H) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.

(I) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.

(J) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

(i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; and

(ii) any discing or similar operation which cuts into and disturbs the soil, where watering is used prior to initiation of these activities, and a determination is made by the agency issuing the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (g)(1)(H)(i). The provisions this clause shall not exempt the owner of any property from stabilizing, in accordance with paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions.

(K) sandblasting operations.

(2) The provisions of paragraphs (d)(1) and (d)(3) shall not apply:

(A) When wind gusts exceed 25 miles per hour, provided that:

(i) The required Table 3 contingency measures in this Rule are implemented for each applicable fugitive dust source type, and;

(ii) records are maintained in accordance with subparagraph (e)(1)(C).

(B) To unpaved roads, provided such roads:

(i) are used solely for the maintenance of wind-generating equipment; or

(ii) are unpaved public alleys as defined in Rule 1186; or

(iii) are service roads that meet all of the following criteria:

(a) are less than 50 feet in width at all points along the road;

(b) are within 25 feet of the property line; and

(c) have a traffic volume less than 20 vehicle-trips per day.

(C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act, as determined in writing by the State or federal agency responsible for making such determinations.

(3) The provisions of (d)(2) shall not apply to any aggregate-related plant or cement manufacturing facility that implements the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards of paragraphs (d)(1) and (d)(3) can not be met through use of Table 2 actions.

(4) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to:

(A) Blasting operations which have been permitted by the California Division of Industrial Safety; and

(B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.

(5) The provisions of paragraph (d)(3) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for

each applicable fugitive dust source type. To qualify for this exemption, a person must maintain records in accordance with subparagraph (e)(1)(C).

(6) The provisions of paragraph (d)(4) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles provided that such roadway is closed to through traffic and visible roadway dust is removed within one day following the cessation of activities.

(7) The provisions of subdivision (e) shall not apply to:

(A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks.

(B) any large operation which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance.

(C) any large operation subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.

(8) The provisions of subparagraph (e)(1)(A) through (e)(1)(C) shall not apply to any large operation with an AQMD-approved fugitive dust control plan provided that there is no change to the sources and controls as identified in the AQMD-approved fugitive dust control plan.

(h) Fees

Any person conducting active operations for which the Executive Officer conducts upwind/downwind monitoring for PM_{10} pursuant to paragraph (d)(3) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(3) or meets the requirements of paragraph (d)(3).

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	✓ Mix backfill soil with water prior to moving ✓ Dedicate water truck or high capacity hose to backfilling equipment ✓ Empty loader bucket slowly so that no dust plumes are generated ✓ Minimize drop height from loader bucket
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	✓ Maintain live perennial vegetation where possible ✓ Apply water in sufficient quantity to prevent generation of dust plumes
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	✓ Use of high pressure air to clear forms may cause exceedance of Rule requirements
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	✓ Follow permit conditions for crushing equipment ✓ Pre-water material prior to loading into crusher ✓ Monitor crusher emissions opacity ✓ Apply water to crushed material to prevent dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration ✓ Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts
Demolition – mechanical/manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	✓ Limit vehicular traffic and disturbances on soils where possible ✓ If interior block walls are planned, install as early as possible ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	✓ Grade each project phase separately, timed to coincide with construction phase ✓ Upwind fencing can prevent material movement on site ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	✓ Use tarps or other suitable enclosures on haul trucks ✓ Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage ✓ Comply with track-out prevention/mitigation requirements ✓ Provide water while loading and unloading to reduce visible dust plumes
Landscaping	10-1 Stabilize soils, materials, slopes	✓ Apply water to materials to stabilize ✓ Maintain materials in a crusted condition ✓ Maintain effective cover over materials ✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes ✓ Hydroseed prior to rain season
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	✓ Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs ✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	✓ Dedicate water truck or high capacity hose to screening operation ✓ Drop material through the screen slowly and minimize drop height ✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	✓ Limit size of staging area ✓ Limit vehicle speeds to 15 miles per hour ✓ Limit number and size of staging area entrances/exists
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	✓ Add or remove material from the downwind portion of the storage pile ✓ Maintain storage piles to avoid steep sides or faces

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	✓ Apply gravel/paving to all haul routes as soon as possible to all future roadway areas ✓ Barriers can be used to ensure vehicles are only used on established parking areas/haul routes
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching ✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114)	✓ Empty loader bucket such that no visible dust plumes are created ✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	✓ Haul waste material immediately off-site

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure		Guidance
Unpaved roads/parking lots	19-1	Stabilize soils to meet the applicable performance standards; and	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
	19-2	Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	
Vacant land	20-1	In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

Table 2
DUST CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

TABLE 3
CONTINGENCY CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

Table 4
(Conservation Management Practices for Confined Animal Facilities)

SOURCE CATEGORY	CONSERVATION MANAGEMENT PRACTICES
Manure Handling **(Only applicable to Commercial Poultry Ranches)**	(1a) Cover manure prior to removing material off-site; AND (1b) Spread the manure before 11:00 AM and when wind conditions are less than 25 miles per hour; AND (1c) Utilize coning and drying manure management by removing manure at laying hen houses at least twice per year and maintain a base of no less than 6 inches of dry manure after clean out; or in lieu of complying with conservation management practice (1c), comply with conservation management practice (1d). (1d) Utilize frequent manure removal by removing the manure from laying hen houses at least every seven days and immediately thin bed dry the material.
Feedstock Handling	(2a) Utilize a sock or boot on the feed truck auger when filling feed storage bins.
Disturbed Surfaces	(3a) Maintain at least 70 percent vegetative cover on vacant portions of the facility; OR (3b) Utilize conservation tillage practices to manage the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops (if applicable) in narrow slots or tilled strips; OR (3c) Apply dust suppressants in sufficient concentrations and frequencies to maintain a stabilized surface.
Unpaved Roads	(4a) Restrict access to private unpaved roads either through signage or physical access restrictions and control vehicular speeds to no more than 15 miles per hour through worker notifications, signage, or any other necessary means; OR (4b) Cover frequently traveled unpaved roads with low silt content material (i.e., asphalt, concrete, recycled road base, or gravel to a minimum depth of four inches); OR (4c) Treat unpaved roads with water, mulch, chemical dust suppressants or other cover to maintain a stabilized surface.
Equipment Parking Areas	(5a) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (5b) Apply material with low silt content (i.e., asphalt, concrete, recycled road base, or gravel to a depth of four inches).