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RIVERSIDE TRANSMISSION RELIABILITY PROJECT

Air Quality Technical Report

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Air Quality Technical Report

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

In 2004, pursuant to Southern California Edison's (SCE) Federal Energy Regulatory Commission (FERC)-approved Transmission Owner (TO) Tariff, Riverside Public Utilities (RPU) submitted a request for SCE to provide additional transmission capacity to meet projected load growth and to provide for system reliability. SCE performed a series of interconnection studies that determined it could not expand Vista Substation, located in Riverside County, due to site and environmental constraints but could expand the regional electrical system to provide RPU a second source of transmission capacity to import bulk electric power. This would be accomplished by creation of a new SCE 230 kilovolts (kV) transmission connection, the construction of a new SCE substation, the construction of a new RPU substation, and the expansion of the RPU 69 kV subtransmission system. The proposed Project, called the Riverside Transmission Reliability Project (RTRP), would provide RPU with long-term system capacity for load growth, and needed system reliability and flexibility. Project components for the RTRP include construction of new 230 kV structures and some new 69 kV structures, development of temporary construction and permanent access roads, and temporary pulling sites.

The additional transmission capacity to RPU would be available through the new SCE Wildlife Substation at 230 kV and then transformed to 69 kV for integration into the RPU electrical system serving the City of Riverside (City). The transformation or "stepping down" of power from 230 kV to 69 kV would take place at a new substation, named Wilderness Substation. Wilderness Substation would be a 230/69 kV substation and would be owned and operated by RPU. Wilderness and Wildlife Substations would be located adjacent to each other on property that is presently owned by and within the City.

In order to integrate the additional transmission capacity into RPU's electric system, RPU's 69 kV system would be expanded and divided into eastern and western systems. The existing source of energy from Vista Substation would continue to supply the eastern system, while the western system would be supplied through the proposed Wilderness Substation. Creating two separate 69 kV subsystems is necessary for prudent electric utility operation and would also help provide the required level of emergency back-up service, particularly in the event of an interruption to either 230/69 kV substation source.

Several new double-circuit 69 kV subtransmission lines would need to be constructed between 69 kV substations within the City. To accommodate these new subtransmission lines, upgrades would be required at four existing RPU 69 kV substations. The upgrades would take place within the existing boundaries of each substation.

New fiber optic communications would also be required for system control of Wilderness and Wildlife Substations and associated 69 kV and 230 kV transmission lines. The 69 kV communication facilities would be incorporated into the existing RPU fiber optic network. The 230 kV communications would meet SCE's reliability standards.

1.2 AIR QUALITY OVERVIEW

The purpose of the air quality study is to inventory existing conditions and to assess the potential air quality impacts of the following Project components: 230 kV transmission line links; 69 kV subtransmission line links; and Wilderness and Wildlife substations.

The air quality environmental analysis 1) presents the regulatory framework for the Project components; 2) provides an overview of the technical methodology used in collecting baseline conditions and evaluating impacts; 3) examines the affected environment within the study corridors and vicinity, where

appropriate; 4) describes the potential impacts on air quality from construction and operation of the Project components; 5) evaluates the level of potential impacts based upon previous environmental impact assessments and California Environmental Quality Act (CEQA) criteria; and 6) presents Environmental Protection elements (EPEs), and Specifically Recommended Mitigation Measures (SRMMs) to reduce potential impacts.

To determine the significance of air quality impacts from the implementation of the proposed Project, the net increase in air pollutants associated with construction of the proposed Project was quantified and compared with applicable criteria pollutant significance thresholds for the South Coast Air Basin (SCAB).

1.3 PROJECT LOCATION

Although the Project area is located in the northwest corner of Riverside County, the majority of the Project area is within the City of Riverside. Several of the Project Alternatives include portions of unincorporated Riverside County. The Project area is generally described as bordered on the north by Interstate 10 and several existing high voltage electrical transmission lines, on the west by Interstate 15, to the east by Interstate 215, and on the south by the southern City limits of Riverside. The Santa Ana River bisects the central portion of the Project area.

The Project is located in the South Coast Air Basin (SCAB) under the jurisdiction of South Coast Air Quality Management District (SCAQMD).

1.4 PROJECT COMPONENTS

1.4.1. 230 kV Transmission Lines

The proposed Project would include construction of a looped 230 kV transmission line present as two Build Options: Build Option A, the Western I-15 Route (10.5 miles), and Build Option B, the Van Buren Route (7.5 miles). These two segments of 230 kV transmission lines would require the following construction tasks:

- Surveying;
- Setting up Marshalling Yards;
- Right-of-Way Clearing;
- Road and Landing Work;
- Guard Structure Installation;
- Install Tubular Steel Pole (TSPs) Foundations;
- TSP - Hauling, Assembly, and Erection;
- Install Lattice Steel Towers (LSTs);
- LST - Hauling, Assembly, and Erection;
- Conductor Installation;
- Guard Structure Removal, and;
- Restoration

Because construction equipment, manpower, and schedule information was provided by SCE at the Build Option level, description and analysis for air quality was prepared at this level.

Build Option A (West I-15 Route) begins at the proposed Wildlife 230 kV Substation, and continues west along the south side of the Santa Ana River and adjacent to several City-owned facilities, including the Riverside Energy Resource Center (RERC) at Acorn Street. At the intersection with the I-15, the route continues north along the east side of the I-15, ending at the existing Mira Loma-Vista #1 230 kV Transmission Line.

Build Option B (Van Buren Route) starts at the proposed Wildlife Substation near the northeast corner of Wilderness Avenue and Ed Perkic Street and extends west along the north side of the Santa Ana River. The route then crosses to the north side of the Union Pacific Railroad at Pedley Road and continues west along Limonite Avenue to the intersection with Eucalyptus Street. The route continues north along Eucalyptus Street to 60th Street, where it continues west until the intersection with Van Buren Boulevard. The route continues northward along the east side of Van Buren Boulevard to its endpoint at the existing Mira Loma–Vista #1 230 kV Transmission Line.

The anticipated construction duration for the 230 kV transmission line portion is approximately 384 working days (19.2 months) for Build Option A and 193 working days (9.7 months) for Build Option B.

1.4.2. 69 kV Sub-Transmission Lines

The proposed Project would include construction of approximately 11.2 miles of 69 kV sub-transmission lines broken down into two segments: Segment 1: Riverside Energy Resource Center (RERC) – Harvey Lynn – Freeman Route (9.1 miles), and Segment 2: Wilderness-Mountain View Route (2.1 miles). For the purposes of this analysis, the emissions from the 69 kV sub-transmission line route from Wilderness to Jurupa Avenue are included in the emissions calculations as a part of Segment 2. These two segments of 69 kV transmission lines require the following construction tasks:

- Surveying;
- Setting up Marshalling Yards;
- Construction Inspection;
- Foundations;
- Steel (Hauling, Assembly, and Erection);
- Wreck-Out (Conductors and Structures);
- Guard Poles;
- Conductor Installation;
- Transfer Existing Facilities;
- Possible Underground Activities (RERC – Harvey Lynn –Freeman Segment only);
- Transmission Pole Installation Activities;
- Conductor Installation, and;
- Clean-Up

Segment 1 (RERC to Harvey Lynn/Freeman substations) starts at the RERC Substation and extends southward paralleling Doolittle Avenue, then west along Arlington Avenue and parts of Rutland Avenue and Cypress Avenue to Crest Avenue. Extending south on Crest Avenue, the segment splits at the intersection of Tyler Street and Mull Avenue with one portion extending along Mull Avenue to Harvey Lynn Substation. The second portion continues south along Tyler Street to the intersection of Tyler Street and approximately Indiana Avenue where it turns northeast and extends to the Freeman Substation on the south side of Highway 91.

Segment 2 (proposed Wilderness Substation to Mountain View Substation) begins east of the RERC Substation and south of the Santa Ana River. The northern portion, between the proposed Wilderness Substation and Mountain View Substation, continues east along Industrial Avenue, then parallels the Union Pacific Railroad to the Mountain View Substation. The southern portion starts at Wilderness Substation and continues south along Wilderness Avenue, ending at the intersection with Jurupa Avenue.

The anticipated construction duration for the 69 kV sub-transmission line portion of the Project is approximately 250 working days (12.5 months) for the RERC-Harvey Lynn-Freeman Route and 75 working days (3.8 months) for the Wilderness-Mountain View Route.

1.4.3. New 230/69 kV Substations

The proposed Project would also include construction of two new substations within a single construction footprint: one 230 kV substation (Wildlife Substation), and an adjacent 230/69 kV substation (Wilderness Substation). The proposed substations would require the following construction tasks:

- Surveying;
- Setting up Marshalling Yards;
- Grading;
- Civil Engineering Activities;
- Electrical Engineering Activities;
- Transformer Activities (69 kV only);
- Paving Activities;
- Fencing Activities, and;
- Testing Activities

The substations are to be located at the northeast corner of Wilderness Avenue and Ed Perkic Street in the northern portion of the City of Riverside. The anticipated construction duration for the 230/69 kV Wilderness Substation is approximately 125 working days (6.3 months).

The Project duration was estimated based on information provided by Riverside Public Utilities (RPU) and Southern California Edison (SCE). Construction activities generally would be scheduled during daylight hours (7:00 a.m. to 5:00 p.m.), Monday through Friday. In actuality, the Project duration may last longer than the number of months estimated above because of unfavorable weather conditions and holidays. However, these non-working days will not affect the emission estimates calculated here within.

2.0 Regulatory Framework

2.1 FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

The U.S. Environmental Protection Agency (EPA) addresses air pollution policy and issues at the national level through implementation of the Clean Air Act. The California Air Resources Board (CARB) has promulgated the California Ambient Air Quality Standards (CAAQS) for ozone (O_3), PM_{10}, $PM_{2.5}$, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb) that are more stringent than the federal standards for most of these criteria pollutants. Counties and metropolitan areas are classified as being in attainment or non-attainment with respect to National Ambient Air Quality Standards (NAAQS) established by the EPA and the CAAQS. Classification of the attainment or non-attainment status of an area is determined by comparing actual monitored air pollutant concentrations with state and federal standards. More than 200 air monitoring stations are located in California and are part of the State and Local Air Monitoring Stations (SLAMS) Network and National Air Monitoring Stations (NAMS). These stations are operated by CARB, Air Pollution Control Districts (APCDs) or Air Quality Management Districts (AQMDs), private contractors, and the National Park Service. Areas that do not have sufficient data for a determination are given an "unclassified" designation and are considered to be in attainment. A comparison between the CAAQS and the NAAQS is provided below in Table 2.1-1.

TABLE 2.1-1. AMBIENT AIR QUALITY STANDARDS

Criteria Pollutant	Averaging Time	CAAQS Concentration	Federal NAAQS Primary	Federal NAAQS Secondary
CO	1-Hour	20.0 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	-
	8-Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	-
NO_2	1-Hour	0.18 ppm (339 µg/m^3)	0.100 ppm	0.053 ppm (100 µg/m^3)
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)
PM_{10}	24-Hour	50 µg/m^3	150 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	Revoked	-
$PM_{2.5}$	24-Hour	35 µg/m^3	35 µg/m^3	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	15.0 µg/m^3	15.0 µg/m^3
SO_2	1-Hour	0.25 ppm (655 µg/m^3)	-	-
	3-Hour	-	-	0.5 ppm (1,300 µg/m^3)
	24-Hour	0.04 ppm (105 µg/m^3)	0.14 ppm	-
	Annual Arithmetic Mean	-	0.030 ppm	-
O_3	1-Hour	0.09 ppm (180 µg/m^3)	0.12 ppm	0.12 ppm
	8-Hour	0.070 ppm (137 µg/m^3)	0.075 ppm	0.075 ppm
Pb	30-Day Average	1.5 µg/m^3	-	-
	Quarterly Average	-	1.5 µg/m^3	1.5 µg/m^3

Source: CARB 2010

The California Clean Air Act requires that each area exceeding the state ambient air quality standards for O_3, CO, SO_2, and NO_2 must develop a plan aimed at achieving those standards (California Health and Safety Code 40911). The California Health and Safety Code, Section 40914, requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5% or more, averaged every consecutive three-year period. To satisfy this requirement, the AQMDs and APCDs are required to develop and implement air pollution reduction measures, which are described in each agency's Air Quality Action Plans (AQAPs) and Air Quality Management Plans (AQMPs) and which outline those agency's strategies for achieving the state ambient air quality standards for criteria pollutants for which the region is classified as non-attainment.

CARB oversees activities of local air quality management agencies, and is responsible for incorporating the AQAPs and AQMPs from local air districts into the State Implementation Plan (SIP) for EPA approval. CARB also maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by CARB to classify air basins as being in attainment or non-attainment with respect to each pollutant and to monitor progress in attaining air quality standards.

2.1.1. Naturally Occurring Asbestos

This discussion is limited to naturally-occurring asbestos (NOA) and the *Memorandum Addressing Naturally Occurring Asbestos in CEQA Documents (*Governor's Office of Planning and Research, 2000). The purpose of the discussion is to establish the impact of NOA entrainment during construction.

Asbestos is a naturally occurring mineral distinguished from other minerals by the fact that its crystals form into long, thin fibers. The main source of NOA is ultramafic (i.e., silica poor) rocks that include serpentine. The fibers, when airborne, may enter the lungs and alveoli and remain there. When the fibers reach the alveoli, white blood cells attack them to try to remove them from the body. However, the fibers are not easily destroyed and eventually scarring of the lung tissue ensues. This scarring is called asbestosis and it leads to greatly diminished breathing capacity. Asbestos exposure is also associated with lung cancer and mesothelioma. Both of these diseases are serious and frequently fatal. For these reasons, use of asbestos is limited and highly regulated. The minimization of NOA is limited to the control measures implemented for fugitive dust.

Identification of NOA in an area where soil may be disturbed (e.g., construction or demolition activities) is important. The California Department of Conservation, Division of Mines and Geology (since renamed California Geological Society) have published a map of the state locating all areas where ultramafic rocks are present. This map indicates there are no ultramafic rocks in the vicinity of the Project location. Therefore, there is virtually no potential for NOA becoming airborne during construction or operation of the proposed Project. However, the fugitive dust controls (primarily frequent watering) planned for the Project would mitigate airborne asbestos fiber releases, in the highly unlikely event that such a release occurs.

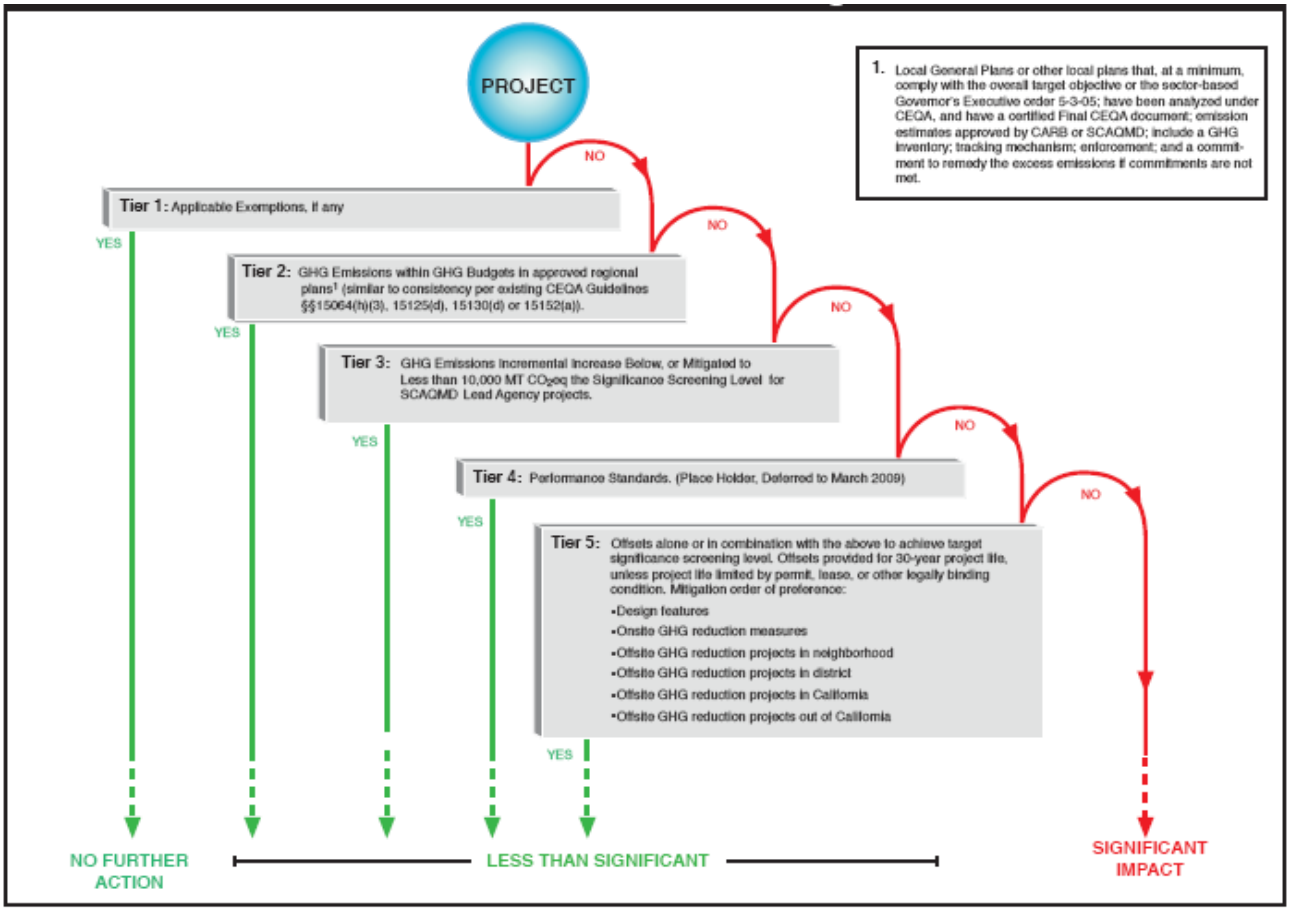
2.1.2. Greenhouse Gas

In addition to the CAAQS, the State of California implemented Executive Order S-03-05, issued by Governor Schwarzenegger, to reduce GHG emissions over various timeframes. Some GHGs occur in nature (water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), while others are exclusively human made (certain industrial gases). This process led to the passage of Assembly Bill 32 (AB32), the Global Warming Solutions Act of 2006, which requires CO_2 emissions reductions from various sectors such as transportation (i.e., motor vehicles), natural gas usage, and electricity generation.

Construction GHG emissions were estimated for the Project. Because the Governor's Office of Planning and Research (OPR) believes the unique nature of GHG emissions warrants investigation of a statewide threshold of significance for GHG emissions, OPR has asked the technical staff of the CARB to recommend a method for setting thresholds of significance. CARB has not formally adopted statewide significance thresholds at this time. Until further guidance is provided from CARB, determination of significant impacts to GHG emissions can be performed using the tiered decision tree approach recommended in the *SCAQMD Interim CEQA GHG Significance Threshold Draft Guidance Document,* which was adopted on December 5, 2008. GHG emissions from construction were compared to the applicable interim GHG significance threshold tier. A schematic of the SCAQMD tiered decision tree is provided in Figure 1. In the proposed *SCAQMD Interim CEQA GHG Significance Threshold Draft Guidance Document*, a Tier 3 significance threshold of 10,000 metric tons (MT) of carbon dioxide equivalents (CO_2e) per year was proposed. The proposed 10,000 metric tons carbon dioxide equivalent

($MTCO_2e$) per year threshold is still being debated, but in the absence of alternative significance thresholds the 10,000 $MTCO_2e$ per year level will be applied for determination of GHG impacts from the Project.

FIGURE 1. SCAQMD TIERED DECISION TREE



Source: SCAQMD 2008.

Global warming potentials (GWPs) for non-CO_2 GHGs were taken from the Intergovernmental Panel on Climate Change Second Assessment Report, which is reprinted in Table C.1 of the California Climate Action Registry (CCAR) General Reporting Protocol (GRP) version 3.1 (CCAR 2009). The GWP corresponding to methane and nitrous oxide (N_2O) is 21 and 310, respectively. Thus, every molecule of methane and N_2O has a global warming potential equivalent to 21 and 310 molecules of CO_2, respectively.

CO_2 emissions during construction are primarily from equipment exhaust (from graders, backhoes, water trucks, etc.) and workers' vehicles.

As mandated in the Public Resources Code Section 25324, CEC adopted a Strategic Transmission Investment Plan (Strategic Plan) to identify the need for specific transmission projects to increase the physical capacity of the California electric transmission system; to achieve the Renewables Portfolio Standard; and to meet the GHG policy goals. One of the GHG policy goals is to reduce global warming effects by creating a CO_2 emissions performance standard for electricity generation. The implementation of the Strategic Plan requires electricity transmission owners in California to submit their proposed projects to the CEC for approval and inclusion into the Strategic Plan, which is updated every two years. The additional 230-69 kV capacity of the Project will eliminate the need to run the RERC and Springs

combustion turbines for the sake of the Vista 230-69 kV transformer capacity restriction. The additional capacity also allows increased capacity to import "green" renewable power.

2.2 LOCAL JURISDICTION

The proposed Project is routed through one local air district jurisdiction (the SCAQMD). The local agency is responsible for planning, implementing and enforcing federal and state ambient air quality and emission standards within their jurisdiction. Regulations of local agencies are primarily focused on stationary sources, indirect sources, promulgated Best Construction Management Practices (BCMPs) or Best Available Control Measures (BACMs) to minimize air pollutants within their jurisdictions. Portable engines used during construction that are larger than 50 hp and that are not registered under the CARB Portable Equipment Registration Program would need to obtain air operating permits from SCAQMD. Similarly, stationary equipment, such as emergency generators, would also be required to comply with the applicable air district regulations, which typically require the use of natural gas or ultra-low sulfur diesel, opacity limitations, and operating hour limitations.

The SCAQMD has visible emission, nuisance, and fugitive dust regulations which are applicable to the proposed Project during construction activities. The specific regulations are as follows:

- SCAQMD Rule 401 – Visible Emissions;
- SCAQMD Rule 402 – Nuisance; and
- SCAQMD Rule 403 – Fugitive Dust.

The intent of these rules is to limit the amount of visible emissions including fugitive dust generated from emission sources. Rule 401, *Visible Emissions*, is typically associated with opacity of exhaust plumes from stationary exhaust stacks. Rule 402, *Nuisance*, and 403, *Fugitive Dust*, ensure that pollutants emitted from any type of emission sources do not cause a public nuisance. These rules are provided in Appendix B. To prevent fugitive dust from traveling off-site at construction activities, recommended control measures are provided in SCAQMD Rule 403. To minimize fugitive dust emissions, feasible fugitive dust control measures as stated in the applicable rules will be implemented to reduce impacts to sensitive receptors located nearby (residents).

Construction activities throughout the SCAB are located in rural and urbanized areas with residences and commercial facilities located in the vicinity. RPU and SCE will take corrective actions including implementation the most stringent control measures specified in the fugitive dust rules to avoid creating a nuisance to the sensitive receptors.

3.0 Technical Methodology and Construction Emissions

This section presents a discussion of the methodology used to calculate emissions of regulated air pollutants from the proposed Project, organized as follows:

- Criteria air pollutant and greenhouse gas (GHG) tailpipe emissions from construction vehicles, equipment, and worker commuting;
- Fugitive dust emissions (PM_{10} and $PM_{2.5}$) from construction and worker commuting vehicles traveling on paved and unpaved roads, and;
- Fugitive dust emissions (PM_{10} and $PM_{2.5}$) from earthmoving activities.

Since the Proposed Project consists of the construction of two new 69 kV sub-transmission line routes, one new 230 kV transmission line route, and two new substations, as well as a variety of associated project components, the air quality analysis assessed the significance of air quality impacts for the Project assuming a worst-case scenario in which the peak-emitting construction activities from each Project component would take place concurrently.

However, it should be noted that this construction scenario with complete overlap is not considered feasible given the project schedules for each segment. Instead, construction activities will be staggered in order to reduce air quality impacts to below significant levels. Construction is expected to commence in August 2012 on the RERC-Harvey Lynn/Freeman 69 kV lines, and work on this route will be completed by September 2013. Construction on the Wilderness-Jurupa/Mountain View 69 kV lines will commence in August 2013, and be completed by October 2014. In June 2014, construction will commence on the I-15 230 kV line and on the Wilderness/Wildlife Substations and will be completed in July 2015 and May 2015, respectively. Thus, overlap of construction activities will be limited to the following:

- RERC-Harvey Lynn/Freeman 69 kV and Wilderness-Jurupa/Mountain View 69 kV in August and September 2013,
- I-15 230 kV, Wilderness/Wildlife Substations, and Wilderness-Jurupa/Mountain View 69 kV from June 2014 through October 2014, and
- I-15 230 kV and Wilderness/Wildlife Substations from November 2014 through May 2015.

Furthermore, in order to reduce construction air quality impacts during the I-15 230 kV, Wilderness/Wildlife Substations, and Wilderness-Jurupa/Mountain View 69 kV period of construction overlap between June 2014 and October 2014, conductor installation/OPGW on the I-15 230 kV line will not overlap with grading for the Wilderness/Wildlife Substations.

The proposed Project is located within the SCAQMD. Therefore, SCAQMD-provided emission factors for off- and on-road mobile sources were used. Emission factors are specific to various types of construction equipment and to various vehicle model years. SCAQMD emission factors were also used to estimate exhaust emissions from construction and employee vehicle and equipment used during all proposed construction phases.

Detailed construction equipment exhaust emissions, fugitive dust emissions due to vehicle travel over paved and unpaved surfaces, and earthmoving activities are provided in Appendix A.

3.1 CRITERIA POLLUTANT EMISSIONS FROM CONSTRUCTION VEHICLES, EQUIPMENT AND WORKER COMMUTING

Construction activities were grouped into various general activities for each of the major components, as identified in Section 1.3. During these activities, air pollutants would be emitted from the use of construction equipment and vehicles used to deliver construction equipment and materials, haul waste, and transport workers.

Construction equipment/vehicle exhaust and fugitive dust emissions were quantified using the construction equipment and workforce estimates provided by RPU and SCE (POWER 2010a and 2011a). Emission factors for off- and on-road mobile sources from the SCAQMD web site were also used (SCAQMD 2008a and b). In addition, the construction equipment and workforce estimate table provide a description of the construction process and a detailed list of construction equipment, daily operating hours, duration of each construction phase, and number of workers for each construction phase. Daily and annual construction emissions were quantified for every category using construction timeline, type of equipment, quantity of equipment, hours of operation, and reasonable assumptions. Conservative assumptions were made for unavailable data, including distance traveled by off-road equipment at the Project site and on-road vehicles (i.e., trucks hauling construction materials and worker's commute distance). Haul trucks were estimated to travel a roundtrip distance of 30 miles. This is a conservative estimate based on doubling the roundtrip distance provided by SCE for Proposed Project access roads. Construction worker vehicles were estimated to travel a roundtrip distance of 40 miles. Although CalEEMod air quality models provide for a default roundtrip home/work commute distance of 22 miles, for the Proposed Project a distance of haul trip length plus 10 miles (=40 miles) was used. This conservative approach assures that emissions from these sources are not underestimated. Other assumptions made are provided in the footnotes of the construction emissions worksheets (see Tables A-1 through A-5 of Appendix A).

3.2 FUGITIVE DUST EMISSIONS (PM_{10} AND $PM_{2.5}$) FROM EMPLOYEE COMMUTING AND CONSTRUCTION VEHICLES

Fugitive dust emissions from employee commuting and construction vehicles were quantified using the construction equipment and workforce estimates provided by RPU and SCE (POWER 2010a and 2011a). These estimates provide a description of the construction process and a detailed list of construction equipment, daily operating hours, duration of each construction phase, and number of workers for each construction phase. Daily and annual fugitive dust emissions were quantified for each category using construction timeline, type of equipment, quantity of equipment, hours of operation, and reasonable assumptions.

Construction employee commuter vehicles were assumed to travel a roundtrip distance of 40 miles on paved surfaces. Haul trucks, -heavy trucks, and other construction vehicles were assumed to travel 25.27 miles per day on paved roads and 4.73 miles per day on unpaved roads. 30 miles per day with travel on both paved and unpaved surfaces.

Unpaved portions of the 230 kV routes were quantified using the access and spur roads estimates provided by SCE (POWER 2009d and 2009e). These estimates provide a description, length, and condition of the existing and proposed access roads associated with the construction of the 230 kV transmission line segments. It was estimated that 50 percent of the total unpaved access roads associated with each segment would be traveled on a daily basis. For analysis purposed, these same estimates were applied to the 69 kV portion of the Proposed Project. Other assumptions made are provided in the footnotes of the construction emissions worksheets (see Tables A-1 through A-5 of Appendix A).

3.3 FUGITIVE DUST EMISSIONS (PM_{10} AND $PM_{2.5}$) FROM CONSTRUCTION ACTIVITIES (EARTHMOVING)

Fugitive dust generated during marshalling yard grading, pole hole digging, conductor installation, and access/spur road construction activities was also quantified. Daily and total fugitive dust emissions were quantified for each category using construction timeline, number of acres disturbed, and reasonable assumptions.

Construction of the Project would begin with the establishment of approximately one or more temporary marshalling yards located at strategic points along the transmission line route. Marshalling yard total area could range in size from 2 to 20 acres. Preparation of marshalling yards would include the application of road base, depending on existing ground conditions at the yard site, and the installation of perimeter fencing.

To represent a conservative worst-case emissions estimate, it was assumed that marshalling yard work areas would total 20 acres, with 25 percent of the work area needing grading and application of road base for offices and employee parking. It was also assumed that the earthmoving activities for marshalling yards would require one month. The acres disturbed per month during yard preparation were calculated by multiplying the 20-acre yard area by 25 percent and dividing by the number of months to set up (one month).

20 acres x 25% / 1 month = 5 acres / month

There are numerous ways to estimate fugitive dust emissions from construction activities. However, the level of precision is dependent upon the availability and accuracy of project-specific data, such as silt content of excavated soil, soil moisture content, depth of excavation, wind speed, annual precipitation, type of construction equipment used, distance traveled, and the frequency and magnitude of water or surfactants application to control dust on unpaved roads and in the excavation areas. Fugitive dust emissions associated with construction operations for the RTRP were quantified using fugitive dust emission factors available on the CARB webpage, http://www.arb.ca.gov/ei/areasrc/ONEHTM/ONE7-7.HTM (CARB 2003). The emission factor, 0.11 tons of PM_{10} per acre-month, was developed to analyze PM_{10} emissions generated from average construction operations that do not involve substantial earth-moving activities. This emission factor assumes that water is applied during site grading to minimize fugitive dust, resulting in an emission reduction efficiency of 50 percent. Substantial earth-moving operations are defined as any earth-moving operation with a daily throughput volume of 5,000 cubic yards or more that occurs three times during a 365-day period. Assuming a road base thickness of 6 inches, the marshalling yard setup will require a total volume of road base of 4,033 cubic yards.

Volume of road base = 5 acres x 43,560 ft^2/acre x 6 inch thickness x (1 ft/12 in) / (1 yd^3 / 27 ft^3) = 4,033 yd^3

Therefore, the proposed Project is considered to have an average, typical construction operation as defined by CARB. To quantify fugitive dust emissions using 0.11 tons of PM_{10} per acre-month emission factor, it was assumed that a maximum of five acres are disturbed per month for setup of the marshalling yard, which breaks down to approximately 0.25 acres per day.

3.4 69 KV SUB-TRANSMISSION LINES

The 69 kV sub-transmission line portion of the RTRP would require the use of an auger to excavate holes in the soil for sub-transmission line pole installation. The 69 kV sub-transmission line poles will be wood for straight transmission line runs and steel for transmission line bends and turns. All of the holes will be excavated to a depth between 8 and 10 feet. The steel poles require a hole diameter of 36 to 40 inches.

The removal of the existing poles does not usually require digging. These existing poles are hydraulically pulled out of the ground and then backfilled with excess soil from a nearby new pole location. The use of the excess soil from nearby new pole installation minimizes haul truck trips to dispose of the excess soil resulting from new pole installation.

No access roads will be constructed or repaired during the construction of the 69 kV sub-transmission line portion of the Project. Existing paved roads and other paved surfaces will be used to gain access and conducted construction operations along the proposed 69 kV sub-transmission line routes. The length of paved access/spur roads associated with the RERC-Harvey Lynn-Freeman and Wilderness-Mountain View Routes is equal to the actual sub-transmission line route lengths of 9.1 miles and 2.1 miles, respectively. Therefore, the only fugitive dust emissions associated with earthmoving for the 69 kV sub-transmission line portion of the Project are pole installation activities.

To represent a conservative worst-case emissions estimate, it was assumed that each of the new pole locations would require a 50' x 50' paved work area for pole hole excavating activities. The acreage disturbed per month during the installation of the poles was calculated by converting the 50' x 50' work area (2,500 ft^2) to acres (divide by 43,560 ft^2 per acre) and multiplying by the number of new pole locations completed per month (30 poles per month).

The RERC-Harvey Lynn-Freeman and Wilderness-Mountain View 69 kV sub-transmission lines would require 323 and 4 new pole installations, respectively.

2,500 ft^2 / pole x (1 acre / 43,560 ft^2) x 30 pole / month = 1.72 acres / month
Or
2,500 ft^2 / pole x (1 acre / 43,560 ft^2) x 327 total pole installations = 18.7 total acres

The fugitive dust emissions associated with construction operations for the 69 kV sub-transmission lines were quantified using fugitive dust emission factors available on the CARB webpage, http://www.arb.ca.gov/ei/areasrc/ONEHTM/ONE7-7.HTM (CARB 2003). The emission factor, 0.11 tons of PM_{10} per acre-month, was developed to analyze PM_{10} emissions generated from average construction operations that do not involve substantial earth-moving activities. This emission factor assumes that water is applied during site grading to minimize fugitive dust, resulting in an emission reduction efficiency of 50 percent. Substantial earth-moving operations are defined as any earth-moving operation with a daily throughput volume of 5,000 cubic yards or more that occurs three times during a 365-day period. The typical transmission pole hole will require removal of less than five cubic yards of soil per day (assuming a single pole install per day).

Volume of soil removed / pole = Π x [40 in x (1 ft/12 in) / 2]^2 x 10 ft / (1 yd^3 / 27 ft^3) = 3.2 yd^3 / pole

The proposed Project is considered to be an average, typical construction operation as defined by CARB. Therefore, to quantify fugitive dust emissions using 0.11 tons of PM_{10} per acre-month emission factor, it was assumed that a maximum 1.72 acres are disturbed per month over the duration of the Project for installation of the transmission line poles, which breaks down to approximately 0.09 acres per day.

3.5 230 KV TRANSMISSION LINES

Fugitive dust emissions associated with earthmoving were quantified using the construction equipment and workforce estimates provided by SCE. These estimates provide a description of the 230 kV transmission line construction process and a detailed list of site quantity, and disturbed acreage for each construction phase. Based on Project information provided by SCE, the 230 kV transmission line construction of the RTRP fugitive dust emissions due to earthmoving would be generated by the following activities:

- Guard Structures
- Construction of tubular steel poles (TSPs)
- Construction of lattice steel towers (LSTs)
- Conductor and optical ground wire (OPGW) cable Stringing Setup Area – Puller
- Conductor and OPGW Stringing Setup Area – Tensioner
- Conductor Splicing Setup Areas
- Access and Spur Road Construction/Repair

Guard structures are temporary supports that are installed at transportation, flood control, and utility crossings to stop the movement of a conductor during stringing activities. Each guard structure installation was conservatively estimated to require a 75' x 50' work area. The quantity of guard structures to be installed on the Western I-15 Route and Van Buren Route is 12 and 32, respectively.

The 230 kV transmission line portion of the RTRP would require the use of an auger to excavate holes in the soil for transmission line tubular steel pole (TSP) and lattice steel tower (LST) installation. All of the holes for TSPs will be excavated to a depth between 20 to 40 feet and require a hole diameter of 7 to 12 feet. Installation of the LSTs requires four holes for each leg of the tower. Each of the holes for the LSTs will be excavated to a depth between 20 to 45 feet and require a hole diameter of 3 to 6 feet. The quantity of TSPs and LSTs to be installed on the Western I-15 Route is 57 and 24, respectively. The quantity of TSPs and LSTs to be installed on the Van Buren Route is 43 and 17, respectively.

Wire stringing operations are to include activities associated with the installation of conductors. The area needed for the stringing setups for both conductor pulling and stringing is typically a 200' x 150' work area. The quantity of conductor stringing areas for pulling and conductor stringing areas for tensioning activities on the Western I-15 Route are both 17. The quantity of both conductor stringing areas for pulling and conductor stringing areas for tensioning activities on the Van Buren Route is 17. The Western I-15 Route will also utilize four 150' x 100' work areas for conductor splicing. The stringing and splicing work areas associated with the RTRP would be temporary, and the land would be restored to its previous condition upon completion of the pulling, tensioning, and splicing activities.

The construction activities on the Western I-15 and Van Buren 230 kV Routes includes construction on both existing right-of-way (ROW) and new ROW. It has been assumed that existing access and spur roads will be utilized. However, some of these existing roads may need rehabilitation work consisting of re-grading, installation of drainage structures, and repair of unstable retaining walls and slopes. It was conservatively assumed that these existing dirt access/spur roads will remained unpaved. These unpaved portions of the 230 kV routes were quantified using the access and spur roads estimates provided by SCE (POWER 2009d and 2009e). These estimates provide a description, length, and condition of the existing and proposed access roads associated with the construction of the 230 kV transmission line segments. The lengths of paved and unpaved access/spur roads associated with the Western I-15 Route are 3.1 miles and 9.5 miles, respectively. The lengths of paved and unpaved access/spur roads associated with the Van Buren Route are 0.5 miles and 4.1miles, respectively.

The fugitive dust emissions associated with construction operations for the 230 kV transmission lines were quantified using fugitive dust emission factors available on the CARB webpage, http://www.arb.ca.gov/ei/areasrc/ONEHTM/ONE7-7.HTM (CARB 2003). The emission factor, 0.11 tons of PM_{10} per acre-month, was developed to analyze PM_{10} emissions generated from average construction operations that do not involve substantial earth-moving activities. This emission factor assumes that water is applied during site grading to minimize fugitive dust, resulting in an emission reduction efficiency of 50 percent. Substantial earth-moving operations are defined as any earth-moving operation with a daily throughput volume of 5,000 cubic yards or more that occurs three times during a 365-day period. The

typical transmission pole hole will require removal of less than fifty cubic yards of soil per day (assuming a single pole install per day).

Volume of soil removed / pole = Π x [6 ft / 2]^2 x 45 ft / (1 yd^3 / 27 ft^3) = 47.1 yd^3 / pole

Therefore, the proposed Project is considered to be an average, typical construction operation, as defined by CARB.

To estimate $PM_{2.5}$ emissions from combustion and fugitive sources, SCAQMD created a method to estimate $PM_{2.5}$ emissions from combustion and mechanical/fugitive emission sources. Mechanical sources are any type of source other than combustion (in this case, fugitive dust generated from motor vehicles traveling on unpaved roads). The method assumes a direct correlation between PM_{10} and $PM_{2.5}$ data in the 2003 Air Quality Management Plan (AQMP) annual inventories for combustion and mechanical/fugitive sources. SCAQMD derived default ratios for mechanical/fugitive process, combustion sources, and off-road combustion sources. The default ratios assume that a specified portion (expressed as a percentage) of PM_{10} emissions are $PM_{2.5}$ emissions. For mechanical/fugitive dust, the method assumes 21 percent of PM_{10} emissions are $PM_{2.5}$. For combustion sources, 99 percent of PM_{10} emissions are $PM_{2.5}$ and for off-road combustion sources, 89 percent of PM_{10} emissions are $PM_{2.5}$ (SCAQMD 2006). $PM_{2.5}$ emissions for fugitive dust and off-road combustion sources were estimated using the default ratios. For on-road mobile sources, $PM_{2.5}$ emissions were estimated using emission factors provided on the SCAQMD's web site (SCAQMD, 2007a), which are derived from the CARB mobile source EMission FACtor Model, EMFAC2007.

Table A-6 of Appendix A presents PM_{10} & $PM_{2.5}$ fugitive dust emissions associated with earthmoving activities. A summary of construction vehicle and equipment tailpipe, travel over paved and unpaved roads, and fugitive dust earthmoving emissions is provided on Tables A-1 through A-5 within Appendix A.

3.6 OPERATIONAL EMISSIONS

Upon completion of the proposed Project, the only operational emissions would be generated from transmission line and substation maintenance activities. It is conservatively estimated that maintenance operations would consist of a maintenance truck driving the length of the project site once every two weeks. As such, operational air pollutant emissions generated during testing and from maintenance vehicles are expected to be negligible and considered to have less than significant air quality impact.

3.7 SIGNIFICANCE CRITERIA

3.7.1. CEQA Requirements

The Environmental Checklist Form provided in Appendix C of the California Environmental Quality Act (CEQA) Guidelines contains a series of questions for determining whether a proposed project will have a "potentially significant impact" on air quality. According to these criteria, a project is determined to have a "potentially significant impact" on air quality if it will:

- Conflict with or obstruct implementation of the applicable air quality plan; or
- Violate any air quality standards or contribute substantially to an existing or projected air quality violation; or
- 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 emission which exceed quantitative thresholds for ozone precursors); or
- Expose sensitive receptors to substantial pollutant concentrations; or

- Create objectionable odors affecting a substantial number of people

In relation to climate change, a significant impact would occur if the project would:

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

According to the CEQA guidelines, a "potentially significant impact" finding is appropriate if there is substantial evidence that an effect may be significant. Furthermore, CEQA Guidelines §15382, define "significant effect on the environment" as "a substantial adverse change in the physical conditions that exist in the area affected by the proposed project".

3.7.2. SCAQMD Emission Rate-Based Significance Thresholds

In addition, the local air quality districts in the proposed Project area have established significance thresholds to assist the Lead Agencies in determining whether a project may have a significant air quality impact. If the proposed Project emissions are expected to equal or exceed the significance thresholds established by the local AQMD or APCD, it is considered to have a significant air quality impact. Projects considered to have a significant air quality impact must implement feasible mitigation measures to reduce project emissions to a level considered less than significant, or to the greatest extent possible. SCAQMD has established regional thresholds of significance for construction and operational activities as shown below in Table 3.2-1. These thresholds are also the *DeMinimis* emission thresholds that trigger a General Conformity Determination for non-attainment and maintenance pollutants, which are specifically identified in the General Conformity Rule.

TABLE 3.2-1. SCAQMD REGIONAL AIR QUALITY SIGNIFICANT THRESHOLDS FOR AIR POLLUTANT EMISSIONS

Criteria Pollutant	SCAQMD Construction	Operation
	lbs/day	lbs/day
CO	550	550
NO_x	100	55
PM_{10}	150	150
$PM_{2.5}$	55	55
Oxides of Sulfur(SO_x)	150	150
VOC	75	55

Source: SCAQMD 2009

The proposed Project is within SCAB and is currently designated as a severe non-attainment area with respect to the 8-hour NAAQS for O_3; a serious non-attainment area with respect to the NAAQS for 1-hour O_3 and PM_{10}; and a non-attainment area with respect to the NAAQS for $PM_{2.5}$. The SCAB is in attainment with the NAAQS for the other applicable criteria pollutants (NO_2, CO, lead and sulfur dioxide).

As part of the SCAQMD's environmental justice program, attention has been focused on localized effects of air quality. Staff at SCAQMD has developed localized significance threshold (LST) methodology that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts (both short-term and long-term). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The use of LSTs by local government is voluntary, to be

implemented at the discretion of the local agencies.

The emissions analyzed under the LST methodology are NO_2, CO, PM_{10}, and $PM_{2.5}$. For attainment pollutants, NO_2 and CO, the LSTs are derived using an air quality dispersion model to back-calculate the emissions per day that would cause or contribute to a violation of any ambient air quality standard for a particular source receptor area. LSTs for NO_2 and CO are derived by adding the incremental emission impacts from the project activity to the peak background NO_2 and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. The most stringent standard for NO_2 is the 1-hour state standard of 25 parts per hundred million and for CO, it is the 1-hour and 8-hour state standards of 9 parts per million (ppm) and 20 ppm, respectively. For PM_{10} and $PM_{2.5}$, for which the SCAB is in non-attainment, the operation LST is derived using an air quality dispersion model to back-calculate the emissions necessary to make an existing violation in the specific source receptor area worse, using the allowable change in concentration thresholds approved by the SCAQMD. For PM_{10} and $PM_{2.5}$, the allowable change in concentration thresholds is 2.5 micrograms per cubic meter ($\mu g/m^3$).

SCAQMD has provided LST lookup tables to allow users to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts for projects with dimensions of five acres or smaller. For projects larger than five acres, SCAQMD recommends that the LST analysis should be performed using ISCST3. Although the entire Project footprint is larger than five acres, the Project is linear in nature and the maximum daily area disturbed is typically less than five acres. In order to more accurately represent the emissions from a linear project that would have a direct impact on the nearby sensitive receptors, the construction activities that would take place within one acre of the nearest receptor were estimated. Therefore, the look-up tables for a one-acre site were used. It is anticipated that pole construction would take place within 25 meters of the sensitive receptors nearest to the project site. Construction emissions included in single pole construction are equipment emissions, fugitive dust emissions from ground disturbance, and fugitive dust emissions from vehicular travel. It should be noted that since emissions resulting from single pole construction exceed the SCAQMD's screening LST thresholds, more detailed modeling was performed utilizing the district-approved SCREEN3 model.

The Project site is located in SRA 23 and the nearest sensitive receptors are residences located adjacent to portions of the 69 and 230 kV transmission lines. Therefore, a receptor distance of 25 meters was used for the transmission lines. The substation portion of the Project is located within areas where there are no sensitive receptors within at least 100 meters. Therefore, a receptor distance of 100 meters was used for those portions (see Tables 3.2-4 and 3.2-5).

3.7.3. Project Emissions

Construction Emissions

Construction of the proposed Project would result in short-term impacts to ambient air quality. Since the Project consists of the installation of two 69 kV sub-transmission line routes, one 230 kV transmission line route, and two substations, the initial air quality analysis assessed the significance of air quality impacts for each of these Project components assuming a "worst-case" scenario in which the peak-emitting construction activities from each Project component would take place concurrently. This worst case analysis for all project components is presented in Table 3.2-2.

TABLE 3.2-2. PROPOSED PROJECT CONSTRUCTION EMISSIONS/AIR DISTRICT REGIONAL THRESHOLD COMPARISON (WORST CASE, I.E., ALL ACTIVITIES CONCURRENT)

	Peak Daily Construction Emissions (lbs/day)					
	NO_x	VOC	CO	PM_{10}	$PM_{2.5}$	SO_2
RERC-Harvey Lynn/Freeman 69 kV subtransmission line	26.68	3.58	20.35	42.58	15.43	0.05
Wilderness-Jurupa-Mountain View 69 kV subtransmission line	24.30	3.34	19.09	26.05	11.88	0.05
I-15 230 kV transmission line (Proposed Project), including telecommunication	61.81	8.01	45.05	66.11	28.56	0.11
Wilderness and Wildlife Substations	36.49	4.24	15.50	36.10	10.44	0.05
Total	149.29	19.16	99.98	170.83	66.30	0.27
SCAQMD Daily Regional Significance Thresholds	100	75	550	150	55	150
Exceed Threshold (Yes/No)?	**Yes**	**No**	**No**	**Yes**	**Yes**	**No**

Under this worst case scenario, peak daily construction emissions would exceed the SCAQMD regional thresholds of significance for emissions of NO_X, PM_{10}, and $PM_{2.5}$.

However, it should be noted that this construction scenario with complete overlap is not feasible given the project schedules for each segment. Instead, construction activities will be staggered in order to reduce air quality impacts to below significant levels. As such, construction is expected to commence in August 2012 on the RERC-Harvey Lynn/Freeman 69 kV lines, and work on this route will be completed by September 2013. Construction on the Wilderness-Jurupa/Mountain View 69 kV lines will commence in August 2013, and be completed by October 2014. In June 2014, construction will commence on the I-15 230 kV line and on the Wilderness/Wildlife Substations and will be completed in July 2015 and May 2015, respectively. Table 3.2-3 presents the compares construction emissions to the SCAQMD regional daily significance thresholds under this scenario. Thus, overlap of construction activities would be limited to the following:

- RERC-Harvey Lynn/Freeman 69 kV and Wilderness-Jurupa/Mountain View 69 kV in August and September 2013,
- I-15 230 kV, Wilderness/Wildlife Substations, and Wilderness-Jurupa/Mountain View 69 kV from June 2014 through October 2014, and
- I-15 230 kV and Wilderness/Wildlife Substations from November 2014 through May 2015.

Furthermore, in order to reduce construction air quality impacts during the I-15 230 kV, Wilderness/Wildlife Substations, and Wilderness-Jurupa/Mountain View 69 kV periods of construction overlap between June 2014 and October 2014, conductor installation/OPGW on the I-15 230 kV line will not overlap with grading for the Wilderness/Wildlife Substations.

Note projected dates provided above are based on assumptions of timely acquisition of all required approvals and permits. Actual construction initiation dates may be different, although any timing differences would not affect the significance conclusions provided herein. However, major construction activity durations and their relationships to each other would remain the same. (Note: Mitigation Measure AQ-14 below captures this staggered schedule scenario.)

TABLE 3.2-3. PROPOSED PROJECT CONSTRUCTION EMISSIONS/AIR DISTRICT REGIONAL THRESHOLD COMPARISON

	Peak Daily Construction Emissions (lbs/day)					
	NO_x	VOC	CO	PM_{10}	$PM_{2.5}$	SO_2
August 2012 - July 2013						
RERC-Harvey Lynn/Freeman 69 kV Route	26.68	3.58	20.35	42.58	15.43	0.05
Wilderness-Jurupa-Mountain View 69 kV Route	0	0	0	0	0	0
I-15 230 kV Route	0	0	0	0	0	0
Wilderness and Wildlife Substations	0	0	0	0	0	0
Total	26.68	3.58	20.35	42.58	15.43	0.05
SCAQMD Regional Significance Thresholds	100	75	550	150	55	150
Exceed Threshold (Yes/No)?	No	No	No	No	No	No
August 2013 - September 2013						
RERC-Harvey Lynn/Freeman 69 kV Route	26.68	3.58	20.35	42.58	15.43	0.05
Wilderness-Jurupa-Mountain View 69 kV Route	24.30	3.34	19.09	26.05	11.88	0.05
I-15 230 kV Route	0	0	0	0	0	0
Wilderness and Wildlife Substations	0	0	0	0	0	0
Total	50.98	6.91	39.44	68.62	27.30	0.10
SCAQMD Regional Significance Thresholds	100	75	550	150	55	150
Exceed Threshold (Yes/No)?	No	No	No	No	No	No
October 2013 - May 2014						
RERC-Harvey Lynn/Freeman 69 kV Route	0	0	0	0	0	0
Wilderness-Jurupa-Mountain View 69 kV Route	24.30	3.34	19.09	26.05	11.88	0.05
I-15 230 kV Route	0	0	0	0	0	0
Wilderness and Wildlife Substations	0	0	0	0	0	0
Total	24.30	3.34	19.09	26.05	11.88	0.05
SCAQMD Regional Significance Thresholds	100	75	550	150	55	150
Exceed Threshold (Yes/No)?	No	No	No	No	No	No
June 2014 - October 2014						
RERC-Harvey Lynn/Freeman 69 kV Route	0	0	0	0	0	0
Wilderness-Jurupa-Mountain View 69 kV Route	11.01	3.46	8.41	9.84	4.78	0.11
I-15 230 kV Route	25.50	3.37	15.36	18.92	7.30	0.11
Wilderness and Wildlife Substations	36.49	4.24	15.50	36.10	10.44	0.05
Total	73.01	11.07	39.27	64.87	22.52	0.27
SCAQMD Regional Significance Thresholds	100	75	550	150	55	150
Exceed Threshold (Yes/No)?	No	No	No	No	No	No
November 2014 - May 2015						
RERC-Harvey Lynn/Freeman 69 kV Route	0	0	0	0	0	0
Wilderness-Jurupa-Mountain View 69 kV Route	0	0	0	0	0	0
I-15 230 kV Route	61.81	8.01	45.05	66.11	28.56	0.11
Wilderness and Wildlife Substations	36.49	4.24	15.50	36.10	10.44	0.05
Total	98.31	12.25	60.54	102.21	39.00	0.16
SCAQMD Regional Significance Thresholds	100	75	550	150	55	150
Exceed Threshold (Yes/No)?	No	No	No	No	No	No

The comparison of the peak daily construction emissions for each phase with the SCAQMD significance regional daily thresholds shows that all pollutants do not exceed the applicable regional significance thresholds. These emission calculations are based upon the SCAQMD off- and on-road mobile sources emission factors, the USEPA AP-42 emission factors for vehicle travel over paved and unpaved roads, the

Western Regional Air Partnership (WRAP) Fugitive Dust Handbook, and the CARB fugitive dust emission factor for average construction operations (< 5,000 acres disturbed per day) that do not involve substantial earth-moving activities.

TABLE 3.2-4. PROPOSED PROJECT CONSTRUCTION EMISSIONS/AIR DISTRICT LOCALIZED THRESHOLD COMPARISON – 25 METER RECEPTOR DISTANCE

	CO		NO_2	PM_{10}	$PM_{2.5}$
	Averaging Time				
	1-Hour	8-Hour	1-Hour	24-Hours	
Single Pole Construction	0.073	0.051	3.17E-03	7.68	7.40
Background Concentration	7	2.9	0.09	N/A	N/A
Total Concentration	7.073	2.951	0.09	7.68	7.40
LST Threshold	20	9	0.18	10.4	10.4
Significant Impact?	No	No	No	No	No

Note: PM_{10} and $PM_{2.5}$ concentrations are expressed in $\mu g/m^3$. All others are expressed in ppm.

TABLE 3.2-5. PROPOSED PROJECT CONSTRUCTION EMISSIONS/AIR DISTRICT LOCALIZED THRESHOLD COMPARISON – 100 METER RECEPTOR DISTANCE

	Peak Daily Construction Emissions (lbs/day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Wilderness/Wildlife Substation	32.94	12.12	28.63	6.83
SCAQMD Daily Localized Significance Thresholds (100 meters)	212	1,746	30	8
Exceed Threshold (Yes/No)?	No	No	No	No

The comparison of the peak daily construction emissions for each phase with the SCAQMD significance localized thresholds shows that all pollutants do not exceed any of the applicable localized significance thresholds.

The CARB fugitive dust emission factor assumes that water is applied during site grading to minimize fugitive dust resulting in an emission reduction efficiency of 50 percent. Implementation of air pollution control and mitigation measures would further reduce air quality impacts from the Project. Additionally, the construction of the proposed Project would be considered transient and of short duration.

Operational Emissions

The only air pollutant emissions associated with operation of the proposed Project would be vehicle tailpipe emissions associated with bi-weekly inspections of the transmission lines and substation by RPU personnel. Emissions of each regulated pollutant will be less than four pounds per day. However, bi-weekly inspection of the existing transmission facilities is already occurring in the Project area. Therefore, operational emissions associated with the proposed Project are considered to be negligible.

GHG Emissions

Construction of the proposed Project would result in emissions of GHG, specifically CO_2 and CH_4, from the operation of construction vehicles and equipment. Other tracked GHGs (N_2O, HFC, PFC, and SF_6) are not generally associated with fossil fuel combustion during construction projects.Table 3.2-6 presents the potential GHG air pollutant emissions due to the operation of construction equipment, employee commuting vehicles, and maintenance operations for the proposed RTRP.

TABLE 3.2-6. SUMMARY OF GHG EMISSIONS DUE TO CONSTRUCTION EQUIPMENT & EMPLOYEE COMMUTING, AND MAINTENANCE OPERATIONS

	Peak Year GHG Emissions (metric tons/year)		
Emission Source	**CO_2**	**CH_4**	**CO_2e [1]**
Construction Equipment/Employee Commuting	1,996.68	0.12	1,999.20
Maintenance Operations	7.1	0.003	7.11
SCAQMD Interim GHG Significance Threshold (Industrial Projects)			10,000
Exceeds Threshold (Yes/No)?			No

[1] Carbon dioxide equivalents (CO_2e) assumes a GWP of 1 for CO_2 and 21 for CH_4, which were obtained from Table 3-1 *Greenhouse Gas and Global Warming Potentials: Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry* dated February 2004 (API 2004).

The comparison of the maximum annual GHG emissions for the total Project (all phases combined) with the SCAQMD Interim GHG Significance Threshold shows that GHG emissions do not exceed the significance thresholds.

3.8 FEDERAL GENERAL CONFORMITY SIGNIFICANCE CRITERIA

In addition to the regional significance criteria, the federal General Conformity Rule (codified at 40 CFR Part 51, Subpart W) would apply to projects involving federal actions in non-attainment areas which emit non-attainment pollutants. The proposed RTRP is not subject to these requirements, since no Federal Action is involved.

3.9 ENVIRONMENTAL PROTECTION ELEMENTS

Following best management and design practices throughout conception, construction, and implementation of the Proposed Project ensures that public safety is paramount and potential environmental impacts are minimized through avoidance. Table 3.4-1 outlines the proposed SCE and RPU Environmental Protection Elements (EPEs) related to air quality and green house gas emissions. The EPEs have been *included as part of the Proposed Project*; therefore, the impact analysis section that follows assumes the implementation of the EPEs listed below. Any impact resulting from the implementation of the Proposed Project (including the EPEs) is identified below.

TABLE 3.4-1. ENVIRONMENTAL PROTECTION ELEMENTS

Measure Number	Environmental Protection Element
AQ-01	The construction activities shall comply with the South Coast Air Quality Management District (SCAQMD) requirements, as applicable to the project.
AQ-02	**Worker Environmental Awareness Program (WEAP) Design and Implementation**– A general Air Quality WEAP would be prepared. All construction crews and contractors would be required to participate in this WEAP training prior to starting work on the project. The air quality WEAP may be combined with the general WEAP for sensitive species as described under EPE Bio-04.

3.10 MITIGATION MEASURES

Specific mitigation measures (see Table 3.5-1) are recommended when it is determined that the Proposed Project, even with integrated EPEs, would result in significant impacts to the environment. These mitigation measures would be applied for impacts related to air quality and greenhouse gases.

TABLE 3.5-1. MITIGATION MEASURES - AIR QUALITY

Measure Number	Description
AQ-1	Use Ultra-low sulfur diesel fuel (e.g., <15 ppm).
AQ-2	Use of clean burning on- and off-road diesel engines. Heavy duty diesel powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) would be utilized.
AQ-3	Construction workers shall carpool to construction sites.
AQ-4	Restrict construction vehicle idling time to less than 5 minutes.
AQ-5	Properly maintain mechanical equipment
AQ-6	Use particle traps and other appropriate controls to reduce diesel particulate matter (DPM).. Other control equipment includes devices such as specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide, and 50 percent of hydrocarbon emissions.
AQ-7	Limit vehicle speeds to 15 mph on unpaved surfaces.
AQ-8	On the last day of active operations prior to weekend or holiday, apply water or chemical stabilizer to maintain a stabilized surface.
AQ-9	Water excavated soil piles hourly or cover with temporary coverings.
AQ-10	Moisten excavated soil prior to loading on haul trucks.
AQ-11	Cover all loads of dirt leaving the site or leave at least two feet of freeboard capacity in haul truck to reduce fugitive dust emissions while en route to disposal site.
AQ-12	Application of water to ground surfaces prior and during earthmoving activity.
AQ-13	Implement fugitive dust control measures as provided in SCAQMD Rule 403
AQ-14	Coordinate final construction schedules to prevent 230 kV transmission line conductor installation utilizing helicopter phase from overlapping with the 69 kV subtransmission line and substation grading and foundation installation phases

4.0 Impact Analysis

The following paragraphs relate to the Air Quality portion of the CEQA checklist.

Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?
The Air Quality Management Plan (AQMP) for the South Coast Air Basin (SCAB) sets forth a comprehensive program that will lead the SCAB into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections.

The Project consists of the construction and operation of transmission lines, which are needed to serve the existing electricity needs of the City. Therefore, the Project is consistent with the City's General Plan and will not obstruct implementation of the AQMP. Impacts are considered less than significant.

Would the proposed project violate any air quality standards or contribute substantially to an existing or projected air quality violation?
The Project is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD has developed thresholds of significance for both regional and localized air quality impacts, which the Project must comply with. The short-term and long-term construction emissions from the Project were estimated in Section 3.7.3 above. Maximum short-term daily emissions are below all applicable SCAQMD regional significance thresholds. Additionally, maximum short-term daily emissions are below the applicable SCAQMD localized significant thresholds. Therefore, short-term emissions from Project construction are considered less than significant on a regional and localized level.

In an effort to further reduce the project's emissions from construction, the lead agency has agreed to implement the following Mitigation Measures:
The emission rates proved herein are potentially significant relative to SCAQMD criteria. The magnitude of the pollutant and particulate matter emissions expressed herein was calculated based on the diligent use of the control measures listed below.

- Use Ultra-low sulfur diesel fuel (e.g., <15 ppm)
- Use of clean burning on- and off-road diesel engines. Heavy duty diesel powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) would be utilized.
- Construction workers shall carpool to construction sites
- Restrict construction vehicle idling time to less than 5 minutes
- Properly maintain mechanical equipment
- Use particle traps and other appropriate controls to reduce diesel particulate matter (DPM).. Other control equipment includes devices such as specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide, and 50 percent of hydrocarbon emissions.
- Limiting vehicle speeds to 15 mph on unpaved surfaces
- On the last day of active operations prior to weekend or holiday, apply water or chemical stabilizer to maintain a stabilized surface
- Water excavated soil piles hourly or cover with temporary coverings
- Moisten excavated soil prior to loading haul trucks
- Cover all loads of dirt leaving the site or leave at least two feet of freeboard capacity in haul truck to reduce fugitive dust emissions while en route to disposal site

- Application of water to ground surfaces prior and during earthmoving activity
- Implementation of fugitive dust controls per SCAQMD rule 403
- Coordinate final construction schedules to prevent 230 kV transmission line conductor installation utilizing helicopter phase from overlapping with the 69 kV sub-transmission line and substation grading and foundation installation phases.

The Project consists of the construction and operation of 69 and 230 kV transmission lines and a 230/69 kV substation. Operational emissions will be generated by the bi-weekly inspections of the transmission line, which will result in emissions of less than four lbs/day for all pollutants. Therefore, operational emissions are considered negligible and impacts are considered less than significant.

The United States is the largest contributor of GHGs in the world and California is the second largest GHG contributor in the United States, second only to Texas. California's GHG emissions would place as the 16th largest world-wide contributor when compared to other countries. In 2004, California produced 492 million metric tons of CO_2-equivalent (CO_2e) GHG emissions, including emissions associated with imported electricity. Project construction will result in emissions of 1,999 tons CO_2e and Project operation will result in annual emissions of 7.11 tons CO_2e. The Project's emissions are a minute fraction of California's emissions. The Project's combined emissions from construction and operation do not exceed the SCAQMD Interim GHG Significance Threshold; therefore, the Project's impacts to GHGs are less than significant.

Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is classified as non-attainment under an applicable federal or state AAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
The portion of the South Coast Air Basin within which the Project is located is designated as a non-attainment area for ozone and PM_{10} under state standards, and as a non-attainment area for ozone, PM_{10}, and $PM_{2.5}$ under federal standards.

Relevant to evaluating the cumulative effects of the Project, Section 21100(e) of CEQA states that "previously approved land use documents including, but not limited to, general plans, specific plans, and local coastal plans, may be used in cumulative impact analysis." In addressing cumulative effects for air quality, the AQMP utilizes approved general plans and, therefore, is the most appropriate document to use to evaluate cumulative impacts of the Project. This is because the AQMP evaluated air quality emissions for the entire south coast air basin using a future development scenario based on population projections and set forth a comprehensive program that would lead the region, including the Project site, into compliance with all federal and state air quality standards. The Project is in compliance with the AQMP and both short-term and long-term emissions are below all applicable SCAQMD established regional and localized thresholds of significance. However, for cumulative assessment purposes, the potential existence of nearby concurrent cumulative projects would add to these regional emission totals. While not projects would occur at the same time as the Proposed Project, it can be assumed that one or more other projects will be in construction or will start operations and cause emissions that exceed regional thresholds for NO_X and thus would be considered cumulatively significant with those of the Proposed Project's construction at some point. It is too speculative to present an accurate estimate of emissions from all potential projects within the Proposed Project area, as specific project information is not available and potential construction schedules are likely to change. Furthermore, the lead agency does not have the authority to mitigate the impacts from all nearby concurrent projects in the area. Even with integration of EPEs and application of Mitigation Measures, the combined effect of construction emissions from the Project and other projects' construction and/or operating emissions would be cumulatively significant at various times during construction.

Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

Most of the proposed construction of proposed Project is within residential/commercial areas in Riverside. The closest residences have been estimated to be less than 25 meters away, based on measurements using aerial photographs. Both construction and operational emissions from the Project have been shown to be less than the applicable SCAQMD thresholds of significance on the regional level. The Project emissions are less than the applicable SCAQMD localized thresholds of significance for CO, NO_X, PM_{10} and $PM_{2.5}$. Therefore, the Project's air quality impact to sensitive receptors is considered less than significant.

Would the proposed project create objectionable odors that would affect a substantial amount of people?

The Project does not propose land uses typically associated with emitting objectionable odors (i.e., wastewater treatment plants, chemical plants, composting operations, refineries, landfills, dairies). No odors are anticipated during Project operation. Additionally, the Project would be required to comply with SCAQMD Rule 204, which prevents occurrences of public nuisance air quality discharges.

Potential odor sources associated with the Project include construction equipment exhaust during construction activities. It is estimated that each transmission line pole location will take one day to install before moving to the next location. These emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction. Odors associated with diesel exhaust would be minimized by requiring that idling of such equipment and vehicles be limited to no more than 5 minutes. Additionally, the Project would be required to comply with SCAQMD Rule 204, which prevents occurrences of public nuisance air quality discharges. Recognizing the short-term duration and quantity of emissions from the Project, the Project will not expose substantial numbers of people to objectionable odors. Therefore, impacts from short-term construction odors are considered less than significant.

5.0 REFERENCES

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SCAQMD 2006 – South Coast Air Quality Management District, Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 http://www.aqmd.gov/ceqa/handbook/PM2_5/finalmeth.doc.

SCAQMD 2008a – South Coast Air Quality Management District, On-Road Vehicle Emission Factors obtained from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

SCAQMD 2008b – South Coast Air Quality Management District, Heavy Duty On-Road Vehicle Emission Factors obtained from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html.

SCAQMD 2009 – South Coast Air Quality Management District, Air Quality Significance Thresholds obtained from http://www.aqmd.gov/ceqa/handbook/signthres.pdf

WRAP 2006 – Western Regional Air Partnership (WRAP) Fugitive Dust Handbook. September.

US EPA 2006a - Document AP-42, Volume I, Fifth Edition, Chapter 13.2.1, Paved Roads. November.

US EPA 2006b - Document AP-42, Volume I, Fifth Edition, Chapter 13.2.2, Unpaved Roads. November.

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APPENDIX A: CONSTRUCTION EMISSION ESTIMATE TABLES

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RTRP
Table A-1
69kV Sub-Transmission Line
RERC-Harvey Lynn-Freeman Route
Criteria Air Pollutants GHG Tailpipe Emissions and Fugitive Dust Emissions from Vehicles Traveling on Paved and Unpaved Roads

RTRP RERC - Harvey Lynn - Freeman - 69kV Project (2012)				***(Construction and Wreck-Out 9.06 Miles)***			Emission Estimation Methodology [3],[4]	Carbon Monoxide (CO)			Nitrogen Oxides (NO_x)			Sulfer Oxides (SO_x)			Particulate Matter less than 10 Microns (PM_{10}) [5]			Particulate Matter less than 2.5 Microns ($PM_{2.5}$) [6]			Volatile Organic Compound (VOC)			Carbon Dioxide (CO_2)			Methane (CH_4)			Global Warming Potential (GWP) [7]	
Primary Equipment Description [1]	Horsepower [1]	Fuel Type [1]	Primary Equipment Quantity [1]	Estimated Activity Schedule (days) [1]	Estimated Equipment Usage Time (hr/day) [1]	Estimated Distance Traveled (Miles Per Day) [2]		Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)
Construction Inspection				(1 Crew)																													
Foreman Truck	180	Gas	1	250	6.00	30.00	On-Road E.F.	0.00765	0.22964	0.02871	0.00078	0.02327	0.00291	0.00001	0.00032	0.00004	0.00009	0.00269	0.00034	0.00006	0.00172	0.00022	0.00080	0.02389	0.00299	1.10153	33.04576	4.13072	0.00007	0.00215	0.00027	33.09093	4.13637
Marshalling Yards				(1 Crew)																													
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	1	250	2.00	-	Off-Road E.F.	0.36504	0.73009	0.09126	0.58441	1.16882	0.14610	0.00059	0.00118	0.00015	0.05332	0.10664	0.01333	89% of PM10	0.09491	0.01186	0.09819	0.19638	0.02455	50.14796	100.29593	12.53699	0.00886	0.01772	0.00221	100.66803	12.58350
Forklift, 5 Ton	75	Diesel	1	250	2.00	-	Off-Road E.F.	0.21954	0.43908	0.05489	0.30167	0.60335	0.07542	0.00037	0.00073	0.00009	0.02770	0.05539	0.00692	89% of PM10	0.04930	0.00616	0.04891	0.09781	0.01223	31.22491	62.44982	7.80623	0.00441	0.00883	0.00110	62.63516	7.82939
Forklift, 10 Ton	85	Diesel	1	250	4.00	-	Off-Road E.F.	0.21954	0.87817	0.10977	0.30167	1.20669	0.15084	0.00037	0.00147	0.00018	0.02770	0.11078	0.01385	89% of PM10	0.09860	0.01232	0.04891	0.19563	0.02445	31.22491	124.89964	15.61246	0.00441	0.01765	0.00221	125.27032	15.65879
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	250	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.02871	0.00078	0.02327	0.00291	0.00001	0.00032	0.00004	0.00009	0.00269	0.00034	0.00006	0.00172	0.00022	0.00080	0.02389	0.00299	1.10153	33.04576	4.13072	0.00007	0.00215	0.00027	33.09093	4.13637
Truck, Flatbed, 2 Ton	210	Diesel	1	250	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.02871	0.00078	0.02327	0.00291	0.00001	0.00032	0.00004	0.00009	0.00269	0.00034	0.00006	0.00172	0.00022	0.00080	0.02389	0.00299	1.10153	33.04576	4.13072	0.00007	0.00215	0.00027	33.09093	4.13637
Truck, Semi, Tractor	310	Diesel	1	250	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.05797	0.01732	0.51973	0.06497	0.00003	0.00080	0.00010	0.00065	0.01949	0.00244	0.00055	0.01649	0.00206	0.00224	0.06713	0.00839	2.76628	82.98852	10.37357	0.00011	0.00320	0.00040	83.05573	10.38197
Worker Vehicles	200	Gas	3	250	8.00	40.00	On-Road E.F.	0.01546	1.85489	0.23186	0.01732	2.07891	0.25986	0.00003	0.00320	0.00040	0.00065	0.07797	0.00975	0.00055	0.06594	0.00824	0.00224	0.26853	0.03357	2.76628	331.95410	41.49426	0.00011	0.01280	0.00160	332.22292	41.52786
<SUBTOTAL>									**4.82523**	**0.60315**		**5.62405**	**0.70301**		**0.00802**	**0.00100**		**0.37567**	**0.04696**		**0.32869**	**0.04109**		**0.87326**	**0.10916**		**768.67953**	**96.08494**		**0.06450**	**0.00806**	**770.03400**	**96.25425**
Survey (Structure Locations)				(1 Crew)																													
Foreman Truck	180	Gas	1	40	4.00	30.00	On-Road E.F.	0.00765	0.22964	0.00459	0.00078	0.02327	0.00047	0.00001	0.00032	0.00001	0.00009	0.00269	0.00005	0.00006	0.00172	0.00003	0.00080	0.02389	0.00048	1.10153	33.04576	0.66092	0.00007	0.00215	0.00004	33.09093	0.66182
Foundations				(1 Crew)																													
Back Hoe, w/ Bucket	85	Diesel	1	160	3.00	-	Off-Road E.F.	0.35571	1.06713	0.08537	0.49103	1.47308	0.11785	0.00061	0.00182	0.00015	0.04320	0.12961	0.01037	89% of PM10	0.11535	0.00923	0.07604	0.22812	0.01825	51.72801	155.18402	12.41472	0.00686	0.02058	0.00165	155.61627	12.44930
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	1	160	2.00	-	Off-Road E.F.	0.36504	0.73009	0.05841	0.58441	1.16882	0.09351	0.00059	0.00118	0.00009	0.05332	0.10664	0.00853	89% of PM10	0.09491	0.00759	0.09819	0.19638	0.01571	50.14796	100.29593	8.02367	0.00886	0.01772	0.00142	100.66803	8.05344
Digger, Transmission Type, Truck Mount	190	Diesel	1	160	6.00	-	Off-Road E.F.	0.34347	2.06081	0.16486	0.87224	5.23346	0.41868	0.00212	0.01270	0.00102	0.02681	0.16084	0.01287	89% of PM10	0.14315	0.01145	0.08380	0.50281	0.04022	188.10184	1128.61105	90.28888	0.00756	0.04537	0.00363	1129.56378	90.36510
Loader, Front End, w/ Bucket	165	Diesel	1	160	4.00	-	Off-Road E.F.	0.62877	2.51510	0.20121	1.01347	4.05386	0.32431	0.00120	0.00478	0.00038	0.05831	0.23324	0.01866	89% of PM10	0.20759	0.01661	0.13124	0.52496	0.04200	106.31518	425.26071	34.02086	0.01184	0.04737	0.00379	426.25540	34.10043
Motor, Auxillary Power	5	Gas	2	160	1.00	-	AP-42	0.00696	0.06960	0.00557	0.01100	0.11000	0.00880	0.00059	0.00591	0.00047	0.00072	0.00721	0.00058	89% of PM10	0.00642	0.00051	0.01500	0.15000	0.01200	1.08000	10.80000	0.86400	-	-	-	10.80000	0.86400
Truck, Concrete, 10 Yard	310	Diesel	2	160	5.00	30.00	On-Road E.F.	0.01546	0.92744	0.07420	0.01732	1.03945	0.08316	0.00003	0.00160	0.00013	0.00065	0.03898	0.00312	0.00055	0.03297	0.00264	0.00224	0.13427	0.01074	2.76628	165.97705	13.27816	0.00011	0.00640	0.00051	166.11146	13.28892
Truck, Crew Cab, Flatbed, 1 Ton	210	Diesel	3	160	4.00	30.00	On-Road E.F.	0.01546	1.39117	0.11129	0.01732	1.55918	0.12473	0.00003	0.00240	0.00019	0.00065	0.05848	0.00468	0.00055	0.04946	0.00396	0.00224	0.20140	0.01611	2.76628	248.96557	19.91725	0.00011	0.00960	0.00077	249.16719	19.93338
Truck, Dump, 10 Ton	235	Diesel	1	160	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.03710	0.01732	0.51973	0.04158	0.00003	0.00080	0.00006	0.00065	0.01949	0.00156	0.00055	0.01649	0.00132	0.00224	0.06713	0.00537	2.76628	82.98852	6.63908	0.00011	0.00320	0.00026	83.05573	6.64446
Truck, Flatbed, 2 Ton	210	Diesel	1	160	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.01837	0.00078	0.02327	0.00186	0.00001	0.00032	0.00003	0.00009	0.00269	0.00022	0.00006	0.00172	0.00014	0.00080	0.02389	0.00191	1.10153	33.04576	2.64366	0.00007	0.00215	0.00017	33.09093	2.64727
Truck, Flatbed w/ Boom, 5 Ton	235	Diesel	1	160	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.03710	0.01732	0.51973	0.04158	0.00003	0.00080	0.00006	0.00065	0.01949	0.00156	0.00055	0.01649	0.00132	0.00224	0.06713	0.00537	2.76628	82.98852	6.63908	0.00011	0.00320	0.00026	83.05573	6.64446
Truck, Mechanics, 1-2 Ton	260	Diesel	1	160	6.00	30.00	On-Road E.F.	0.00765	0.22964	0.01837	0.00078	0.02327	0.00186	0.00001	0.00032	0.00003	0.00009	0.00269	0.00022	0.00006	0.00172	0.00014	0.00080	0.02389	0.00191	1.10153	33.04576	2.64366	0.00007	0.00215	0.00017	33.09093	2.64727
Foreman Truck	210	Diesel	2	160	4.00	30.00	On-Road E.F.	0.00765	0.45928	0.03674	0.00078	0.04655	0.00372	0.00001	0.00064	0.00005	0.00009	0.00539	0.00043	0.00006	0.00345	0.00028	0.00080	0.04778	0.00382	1.10153	66.09152	5.28732	0.00007	0.00430	0.00034	66.18185	5.29455
Truck, Semi, Tractor	310	Diesel	1	160	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.03710	0.01732	0.51973	0.04158	0.00003	0.00080	0.00006	0.00065	0.01949	0.00156	0.00055	0.01649	0.00132	0.00224	0.06713	0.00537	2.76628	82.98852	6.63908	0.00011	0.00320	0.00026	83.05573	6.64446
Worker Vehicles	200	Gas	15	160	8.00	40.00	On-Road E.F.	0.01546	9.27445	0.74196	0.01732	10.39454	0.83156	0.00003	0.01600	0.00128	0.00065	0.38985	0.03119	0.00055	0.32972	0.02638	0.00224	1.34265	0.10741	2.76628	1659.77049	132.78164	0.00011	0.06401	0.00512	1661.11460	132.88917
<SUBTOTAL>									**20.34551**	**1.62764**		**26.68467**	**2.13477**		**0.05008**	**0.00401**		**1.19411**	**0.09553**		**1.03593**	**0.08287**		**3.57755**	**0.28620**		**4276.01344**	**342.08107**		**0.22925**	**0.01834**	**4280.82761**	**342.46621**
Steel (Hauling, Assembly, Erection)				(1 Crew)																													
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	3	95	4.00	-	Off-Road E.F.	0.36504	4.38052	0.20807	0.58441	7.01294	0.33311	0.00059	0.00706	0.00034	0.05332	0.63987	0.03039	89% of PM10	0.56948	0.02705	0.09819	1.17829	0.05597	50.14796	601.77556	28.58434	0.00886	0.10632	0.00505	604.00818	28.69039
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	2	95	3.00	30.00	On-Road E.F.	0.00765	0.45928	0.02182	0.00078	0.04655	0.00221	0.00001	0.00064	0.00003	0.00009	0.00539	0.00026	0.00006	0.00345	0.00016	0.00080	0.04778	0.00227	1.10153	66.09152	3.13935	0.00007	0.00430	0.00020	66.18185	3.14364
Truck, Flatbed w/Boom, 5 Ton	235	Diesel	1	95	4.00	30.00	On-Road E.F.	0.01546	0.46372	0.02203	0.01732	0.51973	0.02469	0.00003	0.00080	0.00004	0.00065	0.01949	0.00093	0.00055	0.01649	0.00078	0.00224	0.06713	0.00319	2.76628	82.98852	3.94195	0.00011	0.00320	0.00015	83.05573	3.94515
Truck, Mechanics, 1-2 Ton	260	Diesel	1	95	6.00	30.00	On-Road E.F.	0.00765	0.22964	0.01091	0.00078	0.02327	0.00111	0.00001	0.00032	0.00002	0.00009	0.00269	0.00013	0.00006	0.00172	0.00008	0.00080	0.02389	0.00113	1.10153	33.04576	1.56967	0.00007	0.00215	0.00010	33.09093	1.57182
Foreman Truck	180	Gas	4	95	4.00	30.00	On-Road E.F.	0.00765	0.91857	0.04363	0.00078	0.09310	0.00442	0.00001	0.00129	0.00006	0.00009	0.01077	0.00051	0.00006	0.00690	0.00033	0.00080	0.09555	0.00454	1.10153	132.18305	6.27869	0.00007	0.00860	0.00041	132.36370	6.28728
Truck, Semi, Tractor	310	Diesel	2	95	5.00	30.00	On-Road E.F.	0.01546	0.92744	0.04405	0.01732	1.03945	0.04937	0.00003	0.00160	0.00008	0.00065	0.03898	0.00185	0.00055	0.03297	0.00157	0.00224	0.13427	0.00638	2.76628	165.97705	7.88391	0.00011	0.00640	0.00030	166.11146	7.89029
Worker Vehicles	200	Gas	8	95	8.00	40.00	On-Road E.F.	0.01546	4.94637	0.23495	0.01732	5.54375	0.26333	0.00003	0.00853	0.00041	0.00065	0.20792	0.00988	0.00055	0.17585	0.00835	0.00224	0.71608	0.03401	2.76628	885.21093	42.04752	0.00011	0.03414	0.00162	885.92778	42.08157
<SUBTOTAL>									**12.32555**	**0.58546**		**14.27879**	**0.67824**		**0.02025**	**0.00096**		**0.92512**	**0.04394**		**0.80687**	**0.03833**		**2.26299**	**0.10749**		**1967.27239**	**93.44544**		**0.16511**	**0.00784**	**1970.73963**	**93.61013**
Wreck-Out (Conductors and Structures)				(1 Crew)																													
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	1	40	4.00	-	Off-Road E.F.	0.36504	1.46017	0.02920	0.58441	2.33765	0.04675	0.00059	0.00235	0.00005	0.05332	0.21329	0.00427	89% of PM10	0.18983	0.00380	0.09819	0.39276	0.00786	50.14796	200.59185	4.01184	0.00886	0.03544	0.00071	201.33606	4.02672
Loader, Front End, w/ Bucket	165	Diesel	1	40	5.00	-	Off-Road E.F.	0.62877	3.14387	0.06288	1.01347	5.06733	0.10135	0.00120	0.00598	0.00012	0.05831	0.29156	0.00583	89% of PM10	0.25948	0.00519	0.13124	0.65620	0.01312	106.31518	531.57588	10.63152	0.01184	0.05921	0.00118	532.81925	10.65639
Motor, Auxillary Power	5	Gas	1	40	2.00	-	Off-Road E.F.	0.00696	0.06960	0.00139	0.01100	0.11000	0.00220	0.00059	0.00591	0.00012	0.00072	0.00721	0.00014	89% of PM10	0.00642	0.00013	0.01500	0.15000	0.00300	1.08000	10.80000	0.21600	-	-	-	10.80000	0.21600
Tension Machine	135	Diesel	1	40	3.00	-	Off-Road E.F.	0.38471	1.15414	0.02308	0.85993	2.57978	0.05160	0.00127	0.00380	0.00008	0.03660	0.10981	0.00220	89% of PM10	0.09773	0.00195	0.09248	0.27745	0.00555	122.69586	368.08758	7.36175	0.00834	0.02503	0.00050	368.61329	7.37227
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	2	40	3.00	30.00	On-Road E.F.	0.00765	0.45928	0.00919	0.00078	0.04655	0.00093	0.00001	0.00064	0.00001	0.00009	0.00539	0.00011	0.00006	0.00345	0.00007	0.00080	0.04778	0.00096	1.10153	66.09152	1.32183	0.00007	0.00430	0.00009	66.18185	1.32364
Truck, Dump, 10 Ton	235	Diesel	1	40	5.00	30.00	On-Road E.F.	0.01546	0.46372	0.00927	0.01732	0.51973	0.01039	0.00003	0.00080	0.00002	0.00065	0.01949	0.00039	0.00055	0.01649	0.00033	0.00224	0.06713	0.00134	2.76628	82.98852	1.65977	0.00011	0.00320	0.00006	83.05573	1.66111
Truck, Flatbed w/ Boom, 5 Ton	235	Diesel	2	40	4.00	30.00	On-Road E.F.	0.01546	0.92744	0.01855	0.01732	1.03945	0.02079	0.00003	0.00160	0.00003	0.00065	0.03898	0.00078	0.00055	0.03297	0.00066	0.00224	0.13427	0.00269	2.76628	165.97705	3.31954	0.00011	0.00640	0.00013	166.11146	3.32223
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	2	40	4.00	30.00	On-Road E.F.	0.01546	0.92744	0.01855	0.01732	1.03945	0.02079	0.00003	0.00160	0.00003	0.00065	0.03898	0.00078	0.00055	0.03297	0.00066	0.00224	0.13427	0.00269	2.76628	165.97705	3.31954	0.00011	0.00640	0.00013	166.11146	3.32223
Truck, Mechanics, 1-2 Ton	260	Diesel	1	40	6.00	30.00	On-Road E.F.	0.00765	0.22964	0.00459	0.00078	0.02327	0.00047	0.00001	0.00032	0.00001	0.00009	0.00269	0.00005	0.00006	0.00172	0.00003	0.00080	0.02389	0.00048	1.10153	33.04576	0.66092	0.00007	0.00215	0.00004	33.09093	0.66182
Foreman Truck	180	Gas	2	40	3.00	30.00	On-Road E.F.	0.00765	0.45928	0.00919	0.00078	0.04655	0.00093	0.00001	0.00064	0.00001	0.00009	0.00539	0.00011	0.00006	0.00345	0.00007	0.00080	0.04778	0.00096	1.10153	66.09152	1.32183	0.00007	0.00430	0.00009	66.18185	1.32364
Truck, Semi, Tractor	310	Diesel	2	40	5.00	30.00	On-Road E.F.	0.01546	0.92744	0.01855	0.01732	1.03945	0.02079	0.00003	0.00160	0.00003	0.00065	0.03898	0.00078	0.00055	0.03297	0.00066	0.00224	0.13427	0.00269	2.76628	165.97705	3.31954	0.00011	0.00640	0.00013	166.11146	3.32223
Truck, Sock Line, Puller, 3-Drum	310	Diesel	1	40	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.00927	0.01732	0.51973	0.01039	0.00003	0.00080	0.00002	0.00065	0.01949	0.00039	0.00055	0.01649	0.00033	0.00224	0.06713	0.00134	2.76628	82.98852	1.65977	0.00011	0.00320	0.00006	83.05573	1.66111
Truck, Wire Take Up, Respooler	310	Diesel	1	40	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.00927	0.01732	0.51973	0.01039	0.00003	0.00080	0.00002	0.00065	0.01949	0.00039	0.00055	0.01649	0.00033	0.00224	0.06713	0.00134	2.76628	82.98852	1.65977	0.00011	0.00320	0.00006	83.05573	1.66111
Worker Vehicles	200	Gas	8	40	8.00	40.00	On-Road E.F.	0.01546	4.94637	0.09893	0.01732	5.54375	0.11088	0.00003	0.00853	0.00017	0.00065	0.20792	0.00416	0.00055	0.17585	0.00352	0.00224	0.71608	0.01432	2.76628	885.21093	17.70422	0.00011	0.03414	0.00068	885.92778	17.71856
<SUBTOTAL>									**16.09587**	**0.32192**		**20.43243**	**0.40865**		**0.03539**	**0.00071**		**1.01869**	**0.02037**		**0.88631**	**0.01773**		**2.91613**	**0.05832**		**2908.39177**	**58.16784**		**0.19337**	**0.00387**	**2912.45258**	**58.24905**
Guard Poles				1 Crew)																													
Air Compressor	75	Gas	1	20	2.00	-	AP-42	0.00696	1.04400	0.01044	0.01100	1.65000	0.01650	0.00059	0.08865	0.00089	0.00072	0.10815	0.00108	89% of PM10	0.09625	0.00096	0.01500	2.25000	0.02250	1.08000	162.00000	1.62000	-	-	-	162.00000	1.62000
Back Hoe, w/ Bucket	85	Diesel	1	20	3.00	-	Off-Road E.F.	0.35571	1.06713	0.01067	0.49103	1.47308	0.01473	0.00061	0.00182	0.00002	0.04320	0.12961	0.00130	89% of PM10	0.11535	0.00115	0.07604	0.22812	0.00228	51.72801	155.18402	1.55184	0.00686	0.02058	0.00021	155.61627	1.55616
Digger, Distribution Type, Truck Mount	190	Diesel	1	20	3.00	-	Off-Road E.F.	0.34347	1.03040	0.01030	0.87224	2.61673	0.02617	0.00212	0.00635	0.00006	0.02681	0.08042	0.00080	89% of PM10	0.07157	0.00072	0.08380	0.25140	0.00251	188.10184	564.30553	5.64306	0.00756	0.02268	0.00023	564.78189	5.64782
Truck, Crew Cab, Flatbed, 1 Ton	210	Diesel	1	20	4.00	30.00	On-Road E.F.	0.00765	0.22964	0.00230	0.00078	0.02327	0.00023	0.00001	0.00032	0.00000	0.00009	0.00269	0.00003	0.00006	0.00172	0.00002	0.00080	0.02389	0.00024	1.10153	33.04576	0.33046	0.00007	0.00215	0.00002	33.09093	0.33091
Truck, Dump, 10 Ton	235	Diesel	1	20	2.00	30.00	On-Road E.F.	0.01546	0.46372	0.00464	0.01732	0.51973	0.00520	0.00003	0.00080	0.00001	0.00065	0.01949	0.00019	0.00055	0.01649	0.00016	0.00224	0.06713	0.00067	2.76628	82.98852	0.82989	0.00011	0.00320	0.00003	83.05573	0.83056
Truck, Flatbed w/ Boom, 5 Ton	235	Diesel	1	20	4.00	30.00	On-Road E.F.	0.01546	0.46372	0.00464	0.01732	0.51973	0.00520	0.00003	0.00080	0.00001	0.00065	0.01949	0.00019	0.00055	0.01649	0.00016	0.00224	0.06713	0.00067	2.76628	82.98852	0.82989	0.00011	0.00320	0.00003	83.05573	0.83056
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	1	20	4.00	30.00	On-Road E.F.	0.01546	0.46372	0.00464	0.01732	0.51973	0.00520	0.00003	0.00080	0.00001	0.00065	0.01949	0.00019	0.00055	0.01649	0.00016	0.00224	0.06713	0.00067	2.76628	82.98852	0.82989	0.00011	0.00320	0.00003	83.05573	0.83056
Truck, Semi, Tractor	310	Diesel	1	20	4.00	30.00	On-Road E.F.	0.01546	0.46372	0.00464	0.01732	0.51973	0.00520	0.00003	0.00080	0.00001	0.00065	0.01949	0.00019	0.00055	0.01649	0.00016	0.00224	0.06713	0.00067	2.76628	82.98852	0.82989	0.00011	0.00320	0.00003	83.05573	0.83056
Worker Vehicles	200	Gas	6	20	8.00	40.00	On-Road E.F.	0.01546	3.70978	0.03710	0.01732	4.15781	0.04158	0.00003	0.00640	0.00006	0.00065	0.15594	0.00156	0.00055	0.13189	0.00132	0.00224	0.53706	0.00537	2.76628	663.90819	6.63908	0.00011	0.02560	0.00026	664.44584	6.64446
<SUBTOTAL>									**8.93584**	**0.08936**		**11.99980**	**0.12000**		**0.10674**	**0.00107**		**0.55478**	**0.00555**		**0.48274**	**0.00483**		**3.55901**	**0.03559**		**1910.39760**	**19.10398**		**0.08382**	**0.00084**	**1912.15784**	**19.12158**
Conductor (Sheaves, Insulators, Stringing, Deadending, Clipping and Spacing)				(1 Crew)																													
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	2	80	3.00	-	Off-Road E.F.	0.36504	2.19026	0.08761	0.58441	3.50647	0.14026	0.00059	0.00353	0.00014	0.05332	0.31993	0.01280	89% of PM10	0.28474	0.01139	0.09819	0.58914	0.02357	50.14796	300.88778	12.03551	0.00886	0.05316	0.00213	302.00409	12.08016
Crawler, Track Type, Sagging (D8 type)	305	Diesel	1	80	2.00	-	Off-Road E.F.	0.78778	1.57556	0.06302	1.79693	3.59385	0.14375	0.00167	0.00334	0.00013	0.08712	0.17425	0.00697	89% of PM10	0.15508	0.00620	0.21699	0.43399	0.01736	151.43879	302.87757	12.11510	0.01958	0.03916	0.00157	303.69989	12.14800
Motor, Auxillary Power	5	Gas	2	80	2.00	-	Off-Road E.F.	0.00696	0.13920	0.00557	0.01100	0.22000	0.00880	0.00059	0.01182	0.00047	0.00072	0.01442	0.00058	89% of PM10	0.01283	0.00051	0.01500	0.30000	0.01200	1.08000	21.60000	0.86400	-	-	-	21.60000	0.86400
Tension Machine, Conductor	135	Diesel	1	80	2.00	-	Off-Road E.F.	0.38471	0.76943	0.03078	0.85993	1.71986	0.06879	0.00127	0.00254	0.00010	0.03660	0.07321	0.00293	89% of PM10	0.06515	0.00261	0.09248	0.18496	0.00740	122.69586	245.39172	9.81567	0.00834	0.01669	0.00067	245.74219	9.82969
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	3	80	4.00	30.00	On-Road E.F.	0.00765	0.68893	0.02756	0.00078	0.06982	0.00279	0.00001	0.00097	0.00004	0.00009	0.00808	0.00032	0.00006	0.00517	0.00021	0.00080	0.07167	0.00287	1.10153	99.13729	3.96549	0.00007	0.00645	0.00026	99.27278	3.97091
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	2	80	6.00	30.00	On-Road E.F.	0.01546	0.92744	0.03710	0.01732	1.03945	0.04158	0.00003	0.00160	0.00006	0.00065	0.03898	0.00156	0.00055	0.03297	0.00132	0.00224	0.13427	0.00537	2.76628	165.97705	6.63908	0.00011	0.00640	0.00026	166.11146	6.64446
Truck, Mechanics, 1-2 Ton	260	Diesel	1	80	6.00	30.00	On-Road E.F.	0.00765	0.22964	0.00919	0.00078	0.02327	0.00093	0.00001	0.00032	0.00001	0.00009	0.00269	0.00011	0.00006	0.00172	0.00007	0.00080	0.02389	0.00096	1.10153	33.04576	1.32183	0.00007	0.00215	0.00009	33.09093	1.32364
Foreman Truck	180	Gas	2	80	5.00	30.00	On-Road E.F.	0.00765	0.45928	0.01837	0.00078	0.04655	0.00186	0.00001	0.00064	0.00003	0.00009	0.00539	0.00022	0.00006	0.00345	0.00014	0.00080	0.04778	0.00191	1.10153	66.09152	2.64366	0.00007	0.00430	0.00017	66.18185	2.64727
Truck, Semi, Tractor	310	Diesel	2	80	4.00	30.00	On-Road E.F.	0.01546	0.92744	0.03710	0.01732	1.03945	0.04158	0.00003	0.00160	0.00006	0.00065	0.03898	0.00156	0.00055	0.03297	0.00132	0.00224	0.13427	0.00537	2.76628	165.97705	6.63908	0.00011	0.00640	0.00026	166.11146	6.64446
Truck, Sock Line, Puller, 3-Drum	310	Diesel	1	80	2.00	30.00	On-Road E.F.	0.01546	0.46372	0.01855	0.01732	0.51973	0.02079	0.00003	0.00080	0.00003	0.00065	0.01949	0.00078	0.00055	0.01649	0.00066	0.00224	0.06713	0.00269	2.76628	82.98852	3.31954	0.00011	0.00320	0.00013	83.05573	3.32223
Truck, Wire Puller, 3-Drum	310	Diesel	1	80	2.00	30.00	On-Road E.F.	0.01546	0.46372	0.01855	0.01732	0.51973	0.02079	0.00003	0.00080	0.00003	0.00065	0.01949	0.00078	0.00055	0.01649	0.00066	0.00224	0.06713	0.00269	2.76628	82.98852	3.31954	0.00011	0.00320	0.00013	83.05573	3.32223
Worker Vehicles	200	Gas	15	80	8.00	40.00	On-Road E.F.	0.01546	9.27445	0.37098	0.01732	10.39454	0.41578	0.00003	0.01600	0.00064	0.00065	0.38985	0.01559	0.00055	0.32972	0.01319	0.00224	1.34265	0.05371	2.76628	1659.77049	66.39082	0.00011	0.06401	0.00256	1661.11460	66.44458
<SUBTOTAL>									**18.10908**	**0.72436**		**22.69272**	**0.90771**		**0.04396**	**0.00176**		**1.10477**	**0.04419**		**0.95680**	**0.03827**		**3.39688**	**0.13588**		**3226.73328**	**129.06933**		**0.20512**	**0.00820**	**3231.04069**	**129.24163**
Transfer Existing Facilities (Services, Transformers, Taps, Underground, Cutouts, Cap Banks, etc.)				(1 Crew)																													
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	40	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.00459	0.00078	0.02327	0.00047	0.00001	0.00032	0.00001	0.00009	0.00269	0.00005	0.00006	0.00172	0.00003	0.00080	0.02389	0.00048	1.10153	33.04576	0.66092	0.00007	0.00215	0.00004	33.09093	0.66182
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	2	40	5.00	30.00	On-Road E.F.	0.01546	0.92744	0.01855	0.01732	1.03945	0.02079	0.00003	0.00160	0.00003	0.00065	0.03898	0.00078	0.00055	0.03297	0.00066	0.00224	0.13427	0.00269	2.76628	165.97705	3.31954	0.00011	0.00640	0.00013	166.11146	3.32223
Truck, Line, w/Dist. Materials, 1-2 Ton	260	Diesel	1	40	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.00459	0.00078	0.02327	0.00047	0.00001	0.00032	0.00001	0.00009	0.00269	0.00005	0.00006	0.00172	0.00003	0.00080	0.02389	0.00048	1.10153	33.04576	0.66092	0.00007	0.00215	0.00004	33.09093	0.66182
Foreman Truck	180	Gas	1	40	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.00459	0.00078	0.02327	0.00047	0.00001	0.00032	0.00001	0.00009	0.00269	0.00005	0.00006	0.00172	0.00003	0.00080	0.02389	0.00048	1.10153	33.04576	0.66092	0.00007	0.00215	0.00004	33.09093	0.66182
Worker Vehicles	200	Gas	6	40	8.00	40.00	On-Road E.F.	0.01546	3.70978	0.07420	0.01732	4.15781	0.08316	0.00003	0.00640	0.00013	0.00065	0.15594	0.00312	0.00055	0.13189	0.00264	0.00224	0.53706	0.01074	2.76628	663.90819	13.27816	0.00011	0.02560	0.00051	664.44584	13.28892
<SUBTOTAL>									**5.32615**	**0.10652**		**5.26709**	**0.10534**		**0.00897**	**0.00018**		**0.20301**	**0.00406**		**0.17004**	**0.00340**		**0.74299**	**0.01486**		**929.02253**	**18.58045**		**0.03845**	**0.00077**	**929.83007**	**18.59660**
Underground (Install Riser Str, Dig and Backfill Bore Pit, Install Conduit and Cable, Terminate Cable, Wet Test)				(1 Crew)																													
Crane, Hydraulic, Rough Terrain, 45 Ton	235	Diesel	1	60	2.00	-	Off-Road E.F.	0.36504	0.73009	0.02190	0.58441	1.16882	0.03506	0.00059	0.00118	0.00004	0.05332	0.10664	0.00320	89% of PM10	0.09491	0.00285	0.09819	0.19638	0.00589	50.14796	100.29593	3.00888	0.00886	0.01772	0.00053	100.66803	3.02004
Loader, Front End, w/ Bucket	165	Diesel	1	60	6.00	-	Off-Road E.F.	0.62877	3.77265	0.11318	1.01347	6.08080	0.18242	0.00120	0.00718	0.00022	0.05831	0.34987	0.01050	89% of PM10	0.31138	0.00934	0.13124	0.78744	0.02362	106.31518	637.89106	19.13673	0.01184	0.07105	0.00213	639.38310	19.18149
Motor, Auxillary Power	5	Gas	2	60	2.00	-	Off-Road E.F.	0.00696	0.13920	0.00418	0.01100	0.22000	0.00660	0.00059	0.01182	0.00035	0.00072	0.01442	0.00043	89% of PM10	0.01283	0.00039	0.01500	0.30000	0.00900	1.08000	21.60000	0.64800	-	-	-	21.60000	0.64800
Truck, Cable Puller, 1-Drum	310	Diesel	1	60	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.01391	0.01732	0.51973	0.01559	0.00003	0.00080	0.00002	0.00065	0.01949	0.00058	0.00055	0.01649	0.00049	0.00224	0.06713	0.00201	2.76628	82.98852	2.48966	0.00011	0.00320	0.00010	83.05573	2.49167
Truck, Concrete, 10 Yard	310	Diesel	2	60	5.00	30.00	On-Road E.F.	0.01546	0.92744	0.02782	0.01732	1.03945	0.03118	0.00003	0.00160	0.00005	0.00065	0.03898	0.00117	0.00055	0.03297	0.00099	0.00224	0.13427	0.00403	2.76628	165.97705	4.97931	0.00011	0.00640	0.00019	166.11146	4.98334
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	60	3.00	30.00	On-Road E.F.	0.00765	0.22964	0.00689	0.00078	0.02327	0.00070	0.00001	0.00032	0.00001	0.00009	0.00269	0.00008	0.00006	0.00172	0.00005	0.00080	0.02389	0.00072	1.10153	33.04576	0.99137	0.00007	0.00215	0.00006	33.09093	0.99273
Truck, Dump, 10 Ton	235	Diesel	2	60	6.00	30.00	On-Road E.F.	0.01546	0.92744	0.02782	0.01732	1.03945	0.03118	0.00003	0.00160	0.00005	0.00065	0.03898	0.00117	0.00055	0.03297	0.00099	0.00224	0.13427	0.00403	2.76628	165.97705	4.97931	0.00011	0.00640	0.00019	166.11146	4.98334
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	1	60	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.01391	0.01732	0.51973	0.01559	0.00003	0.00080	0.00002	0.00065	0.01949	0.00058	0.00055	0.01649	0.00049	0.00224	0.06713	0.00201	2.76628	82.98852	2.48966	0.00011	0.00320	0.00010	83.05573	2.49167
Truck, Mechanics, 1-2 Ton	260	Diesel	1	60	4.00	30.00	On-Road E.F.	0.00765	0.22964	0.00689	0.00078	0.02327	0.00070	0.00001	0.00032	0.00001	0.00009	0.00269	0.00008	0.00006	0.00172	0.00005	0.00080	0.02389	0.00072	1.10153	33.04576	0.99137	0.00007	0.00215	0.00006	33.09093	0.99273
Foreman Truck	180	Gas	3	60	3.00	30.00	On-Road E.F.	0.00765	0.68893	0.02067	0.00078	0.06982	0.00209	0.00001	0.00097	0.00003	0.00009	0.00808	0.00024	0.00006	0.00517	0.00016	0.00080	0.07167	0.00215	1.10153	99.13729	2.97412	0.00007	0.00645	0.00019	99.27278	2.97818
Truck, Semi, Tractor	310	Diesel	1	60	3.00	30.00	On-Road E.F.	0.01546	0.46372	0.01391	0.01732	0.51973	0.01559	0.00003	0.00080	0.00002	0.00065	0.01949	0.00058	0.00055	0.01649	0.00049	0.00224	0.06713	0.00201	2.76628	82.98852	2.48966	0.00011	0.00320	0.00010	83.05573	2.49167
Worker Vehicles	200	Gas	6	60	8.00	40.00	On-Road E.F.	0.01546	3.70978	0.11129	0.01732	4.15781	0.12473	0.00003	0.00640	0.00019	0.00065	0.15594	0.00468	0.00055	0.13189	0.00396	0.00224	0.53706	0.01611	2.76628	663.90819	19.91725	0.00011	0.02560	0.00077	664.44584	19.93338
<SUBTOTAL>									**12.74598**	**0.38238**		**15.38190**	**0.46146**		**0.03378**	**0.00101**		**0.77679**	**0.02330**		**0.67505**	**0.02025**		**2.41025**	**0.07231**		**2169.84366**	**65.09531**		**0.14753**	**0.00443**	**2172.94170**	**65.18825**
Cleanup				(1 Crew)																													
Loader, Front End, w/ Bucket	165	Diesel	1	30	4.00	-	Off-Road E.F.	0.62877	2.51510	0.03773	1.01347	4.05386	0.06081	0.00120	0.00478	0.00007	0.05831	0.23324	0.00350	89% of PM10	0.20759	0.00311	0.13124	0.52496	0.00787	106.31518	425.26071	6.37891	0.01184	0.04737	0.00071	426.25540	6.39383
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	30	4.00	30.00	On-Road E.F.	0.00765	0.22964	0.00344	0.00078	0.02327	0.00035	0.00001	0.00032	0.00000	0.00009	0.00269	0.00004	0.00006	0.00172	0.00003	0.00080	0.02389	0.00036	1.10153	33.04576	0.49569	0.00007	0.00215	0.00003	33.09093	0.49636
Truck, Dump, 10 Ton	235	Diesel	2	30	4.00	30.00	On-Road E.F.	0.01546	0.92744	0.01391	0.01732	1.03945	0.01559	0.00003	0.00160	0.00002	0.00065	0.03898	0.00058	0.00055	0.03297	0.00049	0.00224	0.13427	0.00201	2.76628	165.97705	2.48966	0.00011	0.00640	0.00010	166.11146	2.49167
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	1	30	4.00	30.00	On-Road E.F.	0.01546	0.46372	0.00696	0.01732	0.51973	0.00780	0.00003	0.00080	0.00001	0.00065	0.01949	0.00029	0.00055	0.01649	0.00025	0.00224	0.06713	0.00101	2.76628	82.98852	1.24483	0.00011	0.00320	0.00005	83.05573	1.24584
Worker Vehicles	200	Gas	3	30	8.00	40.00	On-Road E.F.	0.01546	1.85489	0.02782	0.01732	2.07891	0.03118	0.00003	0.00320	0.00005	0.00065	0.07797	0.00117	0.00055	0.06594	0.00099	0.00224	0.26853	0.00403	2.76628	331.95410	4.97931	0.00011	0.01280	0.00019	332.22292	4.98334
<SUBTOTAL>									**5.99080**	**0.08986**		**7.71523**	**0.11573**		**0.01071**	**0.00016**		**0.37239**	**0.00559**		**0.32472**	**0.00487**		**1.01878**	**0.01528**		**1039.22614**	**15.58839**		**0.07192**	**0.00108**	**1040.73644**	**15.61105**
Operational Maintenance [8]				(1 Crew)																													
Truck, Flatbed, w/ Boom, 5 Ton	125	Diesel	1	26	4.00	40.00	On-Road E.F.	0.01546	0.61830	0.00804	0.01732	0.69297	0.00901	0.00003	0.00107	0.00001	0.00065	0.02599	0.00034	0.00055	0.02198	0.00029	0.00224	0.08951	0.00116	2.76628	110.65137	1.43847	0.00011	0.00427	0.00006	110.74097	1.43963
<TOTAL> [9]									**105.16**	**4.56**		**130.12**	**5.64**		**0.32**	**0.01**		**6.53**	**0.29**		**5.67**	**0.25**		**20.81**	**0.84**		**19,261.67**	**842.01**		**1.20**	**0.05**	**19,286.94**	**843.14**
Single Highest lbs/day Emissions for all Construction Phases [10]									**20.35**			**26.68**			**0.11**			**1.19**			**1.04**			**3.58**			**4,276.01**			**0.23**		**4,280.83**	

Notes:
[1] Data from Power Engineers, Inc. (RTRP_emissions_11 18 2009.xls)
[2] Distance traveled is assumed to be: 30 miles for delivery trucks, 40 miles commuters, and 40 miles for segments that consists of both urban and rural areas.
[3] Emission factors for onroad and offroad vehicles are obtained from SCAQMD websites, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html and http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html, respectively, for year 2010.
[4] Auxillary Power Motor and Air Compressor emissions were obtained from AP-42 Section 3.3, Table 3.3.1
[5] For offroad equipment, PM emission factor was used to calculate PM10 emissions.
[6] The SCAQMD derived default ratio for estimating PM2.5 is that for offroad combustion sources 89 percent of PM_{10} is $PM_{2.5}$.
[7] Global Warming Potential (GWP) assumes a GWP of 1 for CO2 and 21 for CH4, which were obtained from Table 3-1 Greenhouse Gas and Global Warming Potentials: Compendium of Green House Gas Emissions Methodologies for the Oil and Gas Industry dated February 2004 (API 2004).
[8] Operational Maintenance emissions were estimated assuming that one line truck would drive the entire distance of the RTRP: RERC - Harvey Lynn - Freeman 69 kV (9.1 miles) every two weeks as part of on-going operational maintenance activities.
[9] Total Emissions were estimated to be the sum of all of the emission source phases not including Operational Maintenance.
[10] Single Highest lb/day Emissions for all Construction Phases Emissions were calculated as the highest maximum emissions any of the construction phases. The construction phases with the highest daily emissions was determined to be the Foundations Phase.

RTRP
Table A-2
69kV Sub-Transmission Line
Wilderness-Mountain View Route
Criteria Air Pollutant Emissions and Fugitive Dust Emissions from Vehicles Traveling on Paved and Unpaved Roads

RTRP Wilderness - Mountain View - Jurupa 69kV Project (2013)				(Construction and Wreck-Out 2.14 Miles)			Emission Estimation Methodology [3],[4]	Carbon Monoxide (CO)			Nitrogen Oxides (NOx)			Sulfer Oxides (SOx)			Particulate Matter less than 10 Microns (PM10) [5]			Particulate Matter less than 2.5 Microns (PM2.5) [6]			Volatile Organic Compound (VOC)			Carbon Dioxide (CO2)			Methane (CH4)			Global Warming Potential (GWP) [7]	
Primary Equipment Description [1]	Horsepower [1]	Fuel Type [1]	Primary Equipment Quantity [1]	Estimated Activity Schedule (days) [1]	Estimated Equipment Usage Time (hr/day) [1]	Estimated Distance Traveled (Miles Per Day) [2]		Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)
Construction Inspection				(1 Crew)																																
Truck, Pick-Up	180	Gas	1	100	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.01064	0.00071	0.02135	0.00107	0.00001	0.00032	0.00002	0.00009	0.00272	0.00014	0.00006	0.00175	0.00009	0.00075	0.02237	0.00112	1.10087	33.02623	1.65131	0.00007	0.00201	0.00010	33.06849	1.65342
Marshalling Yards				(1 Crew)																																
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	1	100	2.00	-	Off-Road E.F.	0.36178	0.72355	0.03618	0.55082	1.10165	0.05508	0.00059	0.00118	0.00006	0.04928	0.09856	0.00493	89% of PM10	0.08772	0.00439	0.09189	0.18378	0.00919	50.14795	100.29590	5.01480	0.00829	0.01658	0.00083	100.64412	5.03221
Forklift, 5 Ton	75	Diesel	1	100	2.00	-	Off-Road E.F.	0.21761	0.43522	0.02176	0.27877	0.55755	0.02788	0.00037	0.00073	0.00004	0.02411	0.04822	0.00241	89% of PM10	0.04291	0.00215	0.04380	0.08760	0.00438	31.22492	62.44983	3.12249	0.00395	0.00790	0.00040	62.61581	3.13079
Forklift, 10 Ton	85	Diesel	1	100	4.00	-	Off-Road E.F.	0.21761	0.87043	0.04352	0.27877	1.11509	0.05575	0.00037	0.00147	0.00007	0.02411	0.09643	0.00482	89% of PM10	0.08583	0.00429	0.04380	0.17519	0.00876	31.22492	124.89966	6.24498	0.00395	0.01581	0.00079	125.23161	6.26158
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	100	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.01064	0.00071	0.02135	0.00107	0.00001	0.00032	0.00002	0.00009	0.00272	0.00014	0.00006	0.00175	0.00009	0.00075	0.02237	0.00112	1.10087	33.02623	1.65131	0.00007	0.00201	0.00010	33.06849	1.65342
Truck, Flatbed, 2 Ton	210	Diesel	1	100	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.01064	0.00071	0.02135	0.00107	0.00001	0.00032	0.00002	0.00009	0.00272	0.00014	0.00006	0.00175	0.00009	0.00075	0.02237	0.00112	1.10087	33.02623	1.65131	0.00007	0.00201	0.00010	33.06849	1.65342
Truck, Semi, Tractor	310	Diesel	1	100	3.00	30.00	On-Road E.F.	0.01408	0.42233	0.02112	0.01577	0.47319	0.02366	0.00003	0.00080	0.00004	0.00060	0.01799	0.00090	0.00050	0.01505	0.00075	0.00206	0.06189	0.00309	2.78163	83.44904	4.17245	0.00010	0.00291	0.00015	83.51017	4.17551
Worker Vehicles	200	Gas	3	100	8.00	40.00	On-Road E.F.	0.01408	1.68933	0.08447	0.01577	1.89277	0.09464	0.00003	0.00322	0.00016	0.00060	0.07195	0.00360	0.00050	0.06021	0.00301	0.00206	0.24755	0.01238	2.78163	333.79615	16.68981	0.00010	0.01164	0.00058	334.04068	16.70203
<SUBTOTAL>									**4.56640**	**0.22832**		**5.18295**	**0.25915**		**0.00804**	**0.00040**		**0.33859**	**0.01693**		**0.29522**	**0.01476**		**0.80075**	**0.04004**		**770.94304**	**38.54715**		**0.05887**	**0.00294**	**772.17936**	**38.60897**
Survey (Structure Locations)				(1 Crew)																																
Truck, Pick-Up	180	Gas	1	15	4.00	30.00	On-Road E.F.	0.00709	0.21277	0.00160	0.00071	0.02135	0.00016	0.00001	0.00032	0.00000	0.00009	0.00272	0.00002	0.00006	0.00175	0.00001	0.00075	0.02237	0.00017	1.10087	33.02623	0.24770	0.00007	0.00201	0.00002	33.06849	0.24801
Foundations				(1 Crew)																																
Back Hoe, w/ Bucket	85	Diesel	1	75	3.00	-	Off-Road E.F.	0.35286	1.05859	0.03970	0.45648	1.36943	0.05135	0.00061	0.00182	0.00007	0.03829	0.11488	0.00431	89% of PM10	0.10225	0.00383	0.06943	0.20830	0.00781	51.72801	155.18403	5.81940	0.00626	0.01879	0.00070	155.57871	5.83420
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	1	75	2.00	-	Off-Road E.F.	0.36178	0.72355	0.02713	0.55082	1.10165	0.04131	0.00059	0.00118	0.00004	0.04928	0.09856	0.00370	89% of PM10	0.08772	0.00329	0.09189	0.18378	0.00689	50.14795	100.29590	3.76110	0.00829	0.01658	0.00062	100.64412	3.77415
Digger, Transmission Type, Truck Mount	190	Diesel	1	75	6.00	-	Off-Road E.F.	0.34288	2.05728	0.07715	0.76318	4.57909	0.17172	0.00212	0.01270	0.00048	0.02208	0.13248	0.00497	89% of PM10	0.11791	0.00442	0.07946	0.47676	0.01788	188.10192	1128.61151	42.32293	0.00717	0.04302	0.00161	1129.51486	42.35681
Loader, Front End, w/ Bucket	165	Diesel	1	75	4.00	-	Off-Road E.F.	0.62735	2.50941	0.09410	0.95013	3.80053	0.14252	0.00120	0.00478	0.00018	0.05351	0.21406	0.00803	89% of PM10	0.19051	0.00714	0.12377	0.49509	0.01857	106.31518	425.26072	15.94728	0.01117	0.04467	0.00168	426.19882	15.98246
Motor, Auxillary Power	5	Gas	2	75	1.00	-	AP-42	0.00696	0.06960	0.00261	0.01100	0.11000	0.00413	0.00059	0.00591	0.00022	0.00072	0.00721	0.00027	89% of PM10	0.00642	0.00024	0.01500	0.15000	0.00563	1.08000	10.80000	0.40500	-	-	-	10.80000	0.40500
Truck, Concrete, 10 Yard	310	Diesel	2	75	5.00	30.00	On-Road E.F.	0.01408	0.84467	0.03168	0.01577	0.94639	0.03549	0.00003	0.00161	0.00006	0.00060	0.03597	0.00135	0.00050	0.03010	0.00113	0.00206	0.12378	0.00464	2.78163	166.89808	6.25868	0.00010	0.00582	0.00022	167.02034	6.26326
Truck, Crew Cab, Flatbed, 1 Ton	210	Diesel	3	75	4.00	30.00	On-Road E.F.	0.01408	1.26700	0.04751	0.01577	1.41958	0.05323	0.00003	0.00241	0.00009	0.00060	0.05396	0.00202	0.00050	0.04516	0.00169	0.00206	0.18567	0.00696	2.78163	250.34711	9.38802	0.00010	0.00873	0.00033	250.53051	9.39489
Truck, Dump, 10 Ton	235	Diesel	1	75	3.00	30.00	On-Road E.F.	0.01408	0.42233	0.01584	0.01577	0.47319	0.01774	0.00003	0.00080	0.00003	0.00060	0.01799	0.00067	0.00050	0.01505	0.00056	0.00206	0.06189	0.00232	2.78163	83.44904	3.12934	0.00010	0.00291	0.00011	83.51017	3.13163
Truck, Flatbed, 2 Ton	210	Diesel	1	75	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.00798	0.00071	0.02135	0.00080	0.00001	0.00032	0.00001	0.00009	0.00272	0.00010	0.00006	0.00175	0.00007	0.00075	0.02237	0.00084	1.10087	33.02623	1.23848	0.00007	0.00201	0.00008	33.06849	1.24007
Truck, Flatbed w/ Boom, 5 Ton	235	Diesel	1	75	3.00	30.00	On-Road E.F.	0.01408	0.42233	0.01584	0.01577	0.47319	0.01774	0.00003	0.00080	0.00003	0.00060	0.01799	0.00067	0.00050	0.01505	0.00056	0.00206	0.06189	0.00232	2.78163	83.44904	3.12934	0.00010	0.00291	0.00011	83.51017	3.13163
Truck, Mechanics, 1-2 Ton	260	Diesel	1	75	6.00	30.00	On-Road E.F.	0.00709	0.21277	0.00798	0.00071	0.02135	0.00080	0.00001	0.00032	0.00001	0.00009	0.00272	0.00010	0.00006	0.00175	0.00007	0.00075	0.02237	0.00084	1.10087	33.02623	1.23848	0.00007	0.00201	0.00008	33.06849	1.24007
Truck, Pick-Up	210	Diesel	2	75	4.00	30.00	On-Road E.F.	0.00709	0.42554	0.01596	0.00071	0.04269	0.00160	0.00001	0.00064	0.00002	0.00009	0.00544	0.00020	0.00006	0.00350	0.00013	0.00075	0.04474	0.00168	1.10087	66.05246	2.47697	0.00007	0.00402	0.00015	66.13697	2.48014
Truck, Semi, Tractor	310	Diesel	1	75	3.00	30.00	On-Road E.F.	0.01408	0.42233	0.01584	0.01577	0.47319	0.01774	0.00003	0.00080	0.00003	0.00060	0.01799	0.00067	0.00050	0.01505	0.00056	0.00206	0.06189	0.00232	2.78163	83.44904	3.12934	0.00010	0.00291	0.00011	83.51017	3.13163
Worker Vehicles	200	Gas	15	75	8.00	40.00	On-Road E.F.	0.01408	8.44667	0.31675	0.01577	9.46387	0.35490	0.00003	0.01609	0.00060	0.00060	0.35973	0.01349	0.00050	0.30104	0.01129	0.00206	1.23777	0.04642	2.78163	1668.98075	62.58678	0.00010	0.05822	0.00218	1670.20338	62.63263
<SUBTOTAL>									**19.09484**	**0.71606**		**24.29550**	**0.91108**		**0.05021**	**0.00188**		**1.08170**	**0.04056**		**0.93326**	**0.03500**		**3.33628**	**0.12511**		**4288.83013**	**160.83113**		**0.21262**	**0.00797**	**4293.29519**	**160.99857**
Steel (Hauling, Assembly, Erection)				(1 Crew)																																
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	3	40	4.00	-	Off-Road E.F.	0.36178	4.34131	0.08683	0.55082	6.60988	0.13220	0.00059	0.00706	0.00014	0.04928	0.59137	0.01183	89% of PM10	0.52632	0.01053	0.09189	1.10265	0.02205	50.14795	601.77541	12.03551	0.00829	0.09949	0.00199	603.86471	12.07729
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	2	40	3.00	30.00	On-Road E.F.	0.00709	0.42554	0.00851	0.00071	0.04269	0.00085	0.00001	0.00064	0.00001	0.00009	0.00544	0.00011	0.00006	0.00350	0.00007	0.00075	0.04474	0.00089	1.10087	66.05246	1.32105	0.00007	0.00402	0.00008	66.13697	1.32274
Truck, Flatbed w/Boom, 5 Ton	235	Diesel	1	40	4.00	30.00	On-Road E.F.	0.01408	0.42233	0.00845	0.01577	0.47319	0.00946	0.00003	0.00080	0.00002	0.00060	0.01799	0.00036	0.00050	0.01505	0.00030	0.00206	0.06189	0.00124	2.78163	83.44904	1.66898	0.00010	0.00291	0.00006	83.51017	1.67020
Truck, Mechanics, 1-2 Ton	260	Diesel	1	40	6.00	30.00	On-Road E.F.	0.00709	0.21277	0.00426	0.00071	0.02135	0.00043	0.00001	0.00032	0.00001	0.00009	0.00272	0.00005	0.00006	0.00175	0.00004	0.00075	0.02237	0.00045	1.10087	33.02623	0.66052	0.00007	0.00201	0.00004	33.06849	0.66137
Truck, Pick-Up	180	Gas	4	40	4.00	30.00	On-Road E.F.	0.00709	0.85107	0.01702	0.00071	0.08539	0.00171	0.00001	0.00129	0.00003	0.00009	0.01088	0.00022	0.00006	0.00700	0.00014	0.00075	0.08948	0.00179	1.10087	132.10492	2.64210	0.00007	0.00805	0.00016	132.27395	2.64548
Truck, Semi, Tractor	310	Diesel	2	40	5.00	30.00	On-Road E.F.	0.01408	0.84467	0.01689	0.01577	0.94639	0.01893	0.00003	0.00161	0.00003	0.00060	0.03597	0.00072	0.00050	0.03010	0.00060	0.00206	0.12378	0.00248	2.78163	166.89808	3.33796	0.00010	0.00582	0.00012	167.02034	3.34041
Worker Vehicles	200	Gas	8	40	8.00	40.00	On-Road E.F.	0.01408	4.50489	0.09010	0.01577	5.04740	0.10095	0.00003	0.00858	0.00017	0.00060	0.19186	0.00384	0.00050	0.16056	0.00321	0.00206	0.66015	0.01320	2.78163	890.12307	17.80246	0.00010	0.03105	0.00062	890.77513	17.81550
<SUBTOTAL>									**11.60258**	**0.23205**		**13.22629**	**0.26453**		**0.02031**	**0.00041**		**0.85623**	**0.01712**		**0.74428**	**0.01489**		**2.10505**	**0.04210**		**1973.42920**	**39.46858**		**0.15336**	**0.00307**	**1976.64976**	**39.53300**
Wreck-Out (Conductors and Structures)				(1 Crew)																																
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	1	10	4.00	-	Off-Road E.F.	0.36178	1.44710	0.00724	0.55082	2.20329	0.01102	0.00059	0.00235	0.00001	0.04928	0.19712	0.00099	89% of PM10	0.17544	0.00088	0.09189	0.36755	0.00184	50.14795	200.59180	1.00296	0.00829	0.03316	0.00017	201.28824	1.00644
Loader, Front End, w/ Bucket	165	Diesel	1	10	5.00	-	Off-Road E.F.	0.62735	3.13676	0.01568	0.95013	4.75066	0.02375	0.00120	0.00598	0.00003	0.05351	0.26757	0.00134	89% of PM10	0.23814	0.00119	0.12377	0.61887	0.00309	106.31518	531.57589	2.65788	0.01117	0.05584	0.00028	532.74852	2.66374
Motor, Auxillary Power	5	Gas	1	10	2.00	-	Off-Road E.F.	0.00696	0.06960	0.00035	0.01100	0.11000	0.00055	0.00059	0.00591	0.00003	0.00072	0.00721	0.00004	89% of PM10	0.00642	0.00003	0.01500	0.15000	0.00075	1.08000	10.80000	0.05400	-	-	-	10.80000	0.05400
Tension Machine	135	Diesel	1	10	3.00	-	Off-Road E.F.	0.37649	1.12946	0.00565	0.79377	2.38132	0.01191	0.00127	0.00380	0.00002	0.03299	0.09898	0.00049	89% of PM10	0.08809	0.00044	0.08724	0.26173	0.00131	122.66358	367.99074	1.83995	0.00787	0.02362	0.00012	368.48667	1.84243
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	2	10	3.00	30.00	On-Road E.F.	0.00709	0.42554	0.00213	0.00071	0.04269	0.00021	0.00001	0.00064	0.00000	0.00009	0.00544	0.00003	0.00006	0.00350	0.00002	0.00075	0.04474	0.00022	1.10087	66.05246	0.33026	0.00007	0.00402	0.00002	66.13697	0.33068
Truck, Dump, 10 Ton	235	Diesel	1	10	5.00	30.00	On-Road E.F.	0.01408	0.42233	0.00211	0.01577	0.47319	0.00237	0.00003	0.00080	0.00000	0.00060	0.01799	0.00009	0.00050	0.01505	0.00008	0.00206	0.06189	0.00031	2.78163	83.44904	0.41725	0.00010	0.00291	0.00001	83.51017	0.41755
Truck, Flatbed w/ Boom, 5 Ton	235	Diesel	2	10	4.00	30.00	On-Road E.F.	0.01408	0.84467	0.00422	0.01577	0.94639	0.00473	0.00003	0.00161	0.00001	0.00060	0.03597	0.00018	0.00050	0.03010	0.00015	0.00206	0.12378	0.00062	2.78163	166.89808	0.83449	0.00010	0.00582	0.00003	167.02034	0.83510
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	2	10	4.00	30.00	On-Road E.F.	0.01408	0.84467	0.00422	0.01577	0.94639	0.00473	0.00003	0.00161	0.00001	0.00060	0.03597	0.00018	0.00050	0.03010	0.00015	0.00206	0.12378	0.00062	2.78163	166.89808	0.83449	0.00010	0.00582	0.00003	167.02034	0.83510
Truck, Mechanics, 1-2 Ton	260	Diesel	1	10	6.00	30.00	On-Road E.F.	0.00709	0.21277	0.00106	0.00071	0.02135	0.00011	0.00001	0.00032	0.00000	0.00009	0.00272	0.00001	0.00006	0.00175	0.00001	0.00075	0.02237	0.00011	1.10087	33.02623	0.16513	0.00007	0.00201	0.00001	33.06849	0.16534
Truck, Pick-Up	180	Gas	2	10	3.00	30.00	On-Road E.F.	0.00709	0.42554	0.00213	0.00071	0.04269	0.00021	0.00001	0.00064	0.00000	0.00009	0.00544	0.00003	0.00006	0.00350	0.00002	0.00075	0.04474	0.00022	1.10087	66.05246	0.33026	0.00007	0.00402	0.00002	66.13697	0.33068
Truck, Semi, Tractor	310	Diesel	2	10	5.00	30.00	On-Road E.F.	0.01408	0.84467	0.00422	0.01577	0.94639	0.00473	0.00003	0.00161	0.00001	0.00060	0.03597	0.00018	0.00050	0.03010	0.00015	0.00206	0.12378	0.00062	2.78163	166.89808	0.83449	0.00010	0.00582	0.00003	167.02034	0.83510
Truck, Sock Line, Puller, 3-Drum	310	Diesel	1	10	3.00	30.00	On-Road E.F.	0.01408	0.42233	0.00211	0.01577	0.47319	0.00237	0.00003	0.00080	0.00000	0.00060	0.01799	0.00009	0.00050	0.01505	0.00008	0.00206	0.06189	0.00031	2.78163	83.44904	0.41725	0.00010	0.00291	0.00001	83.51017	0.41755
Truck, Wire Take Up, Respooler	310	Diesel	1	10	3.00	30.00	On-Road E.F.	0.01408	0.42233	0.00211	0.01577	0.47319	0.00237	0.00003	0.00080	0.00000	0.00060	0.01799	0.00009	0.00050	0.01505	0.00008	0.00206	0.06189	0.00031	2.78163	83.44904	0.41725	0.00010	0.00291	0.00001	83.51017	0.41755
Worker Vehicles	200	Gas	8	10	8.00	40.00	On-Road E.F.	0.01408	4.50489	0.02252	0.01577	5.04740	0.02524	0.00003	0.00858	0.00004	0.00060	0.19186	0.00096	0.00050	0.16056	0.00080	0.00206	0.66015	0.00330	2.78163	890.12307	4.45062	0.00010	0.03105	0.00016	890.77513	4.45388
<SUBTOTAL>									**15.15266**	**0.07576**		**18.85815**	**0.09429**		**0.03548**	**0.00018**		**0.93823**	**0.00469**		**0.81286**	**0.00406**		**2.72714**	**0.01364**		**2917.25399**	**14.58627**		**0.17993**	**0.00090**	**2921.03252**	**14.60516**
Guard Poles				1 Crew)																																
Air Compressor	75	Gas	1	15	2.00	-	AP-42	0.00696	1.04400	0.00783	0.01100	1.65000	0.01238	0.00059	0.08865	0.00066	0.00072	0.10815	0.00081	89% of PM10	0.09625	0.00072	0.01500	2.25000	0.01688	1.08000	162.00000	1.21500	-	-	-	162.00000	1.21500
Back Hoe, w/ Bucket	85	Diesel	1	15	3.00	-	Off-Road E.F.	0.35286	1.05859	0.00794	0.45648	1.36943	0.01027	0.00061	0.00182	0.00001	0.03829	0.11488	0.00086	89% of PM10	0.10225	0.00077	0.06943	0.20830	0.00156	51.72801	155.18403	1.16388	0.00626	0.01879	0.00014	155.57871	1.16684
Digger, Distribution Type, Truck Mount	190	Diesel	1	15	3.00	-	Off-Road E.F.	0.34288	1.02864	0.00771	0.76318	2.28954	0.01717	0.00212	0.00635	0.00005	0.02208	0.06624	0.00050	89% of PM10	0.05895	0.00044	0.07946	0.23838	0.00179	188.10192	564.30575	4.23229	0.00717	0.02151	0.00016	564.75743	4.23568
Truck, Crew Cab, Flatbed, 1 Ton	210	Diesel	1	15	4.00	30.00	On-Road E.F.	0.00709	0.21277	0.00160	0.00071	0.02135	0.00016	0.00001	0.00032	0.00000	0.00009	0.00272	0.00002	0.00006	0.00175	0.00001	0.00075	0.02237	0.00017	1.10087	33.02623	0.24770	0.00007	0.00201	0.00002	33.06849	0.24801
Truck, Dump, 10 Ton	235	Diesel	1	15	2.00	30.00	On-Road E.F.	0.01408	0.42233	0.00317	0.01577	0.47319	0.00355	0.00003	0.00080	0.00001	0.00060	0.01799	0.00013	0.00050	0.01505	0.00011	0.00206	0.06189	0.00046	2.78163	83.44904	0.62587	0.00010	0.00291	0.00002	83.51017	0.62633
Truck, Flatbed w/ Boom, 5 Ton	235	Diesel	1	15	4.00	30.00	On-Road E.F.	0.01408	0.42233	0.00317	0.01577	0.47319	0.00355	0.00003	0.00080	0.00001	0.00060	0.01799	0.00013	0.00050	0.01505	0.00011	0.00206	0.06189	0.00046	2.78163	83.44904	0.62587	0.00010	0.00291	0.00002	83.51017	0.62633
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	1	15	4.00	30.00	On-Road E.F.	0.01408	0.42233	0.00317	0.01577	0.47319	0.00355	0.00003	0.00080	0.00001	0.00060	0.01799	0.00013	0.00050	0.01505	0.00011	0.00206	0.06189	0.00046	2.78163	83.44904	0.62587	0.00010	0.00291	0.00002	83.51017	0.62633
Truck, Semi, Tractor	310	Diesel	1	15	4.00	30.00	On-Road E.F.	0.01408	0.42233	0.00317	0.01577	0.47319	0.00355	0.00003	0.00080	0.00001	0.00060	0.01799	0.00013	0.00050	0.01505	0.00011	0.00206	0.06189	0.00046	2.78163	83.44904	0.62587	0.00010	0.00291	0.00002	83.51017	0.62633
Worker Vehicles	200	Gas	6	15	8.00	40.00	On-Road E.F.	0.01408	3.37867	0.02534	0.01577	3.78555	0.02839	0.00003	0.00644	0.00005	0.00060	0.14389	0.00108	0.00050	0.12042	0.00090	0.00206	0.49511	0.00371	2.78163	667.59230	5.00694	0.00010	0.02329	0.00017	668.08135	5.01061
<SUBTOTAL>									**8.41200**	**0.06309**		**11.00864**	**0.08256**		**0.10680**	**0.00080**		**0.50783**	**0.00381**		**0.43983**	**0.00330**		**3.46171**	**0.02596**		**1915.90447**	**14.36928**		**0.07725**	**0.00058**	**1917.52666**	**14.38145**
Conductor (Sheaves, Insulators, Stringing, Deadending, Clipping and Spacing)				(1 Crew)																																
Crane, Hydraulic, Rough Terrain, 25-35 Ton	125	Diesel	2	40	3.00	-	Off-Road E.F.	0.36178	2.17066	0.04341	0.55082	3.30494	0.06610	0.00059	0.00353	0.00007	0.04928	0.29568	0.00591	89% of PM10	0.26316	0.00526	0.09189	0.55133	0.01103	50.14795	300.88770	6.01775	0.00829	0.04975	0.00099	301.93235	6.03865
Crawler, Track Type, Sagging (D8 type)	305	Diesel	1	40	2.00	-	Off-Road E.F.	0.76494	1.52988	0.03060	1.70618	3.41236	0.06825	0.00167	0.00334	0.00007	0.08184	0.16367	0.00327	89% of PM10	0.14567	0.00291	0.20772	0.41544	0.00831	151.43372	302.86744	6.05735	0.01874	0.03748	0.00075	303.65461	6.07309
Motor, Auxillary Power	5	Gas	2	40	2.00	-	Off-Road E.F.	0.00696	0.13920	0.00278	0.01100	0.22000	0.00440	0.00059	0.01182	0.00024	0.00072	0.01442	0.00029	89% of PM10	0.01283	0.00026	0.01500	0.30000	0.00600	1.08000	21.60000	0.43200	-	-	-	21.60000	0.43200
Tension Machine, Conductor	135	Diesel	1	40	2.00	-	Off-Road E.F.	0.37649	0.75298	0.01506	0.79377	1.58755	0.03175	0.00127	0.00254	0.00005	0.03299	0.06599	0.00132	89% of PM10	0.05873	0.00117	0.08724	0.17449	0.00349	122.66358	245.32716	4.90654	0.00787	0.01574	0.00031	245.65778	4.91316
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	3	40	4.00	30.00	On-Road E.F.	0.00709	0.63831	0.01277	0.00071	0.06404	0.00128	0.00001	0.00096	0.00002	0.00009	0.00816	0.00016	0.00006	0.00525	0.00011	0.00075	0.06711	0.00134	1.10087	99.07869	1.98157	0.00007	0.00604	0.00012	99.20546	1.98411
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	2	40	6.00	30.00	On-Road E.F.	0.01408	0.84467	0.01689	0.01577	0.94639	0.01893	0.00003	0.00161	0.00003	0.00060	0.03597	0.00072	0.00050	0.03010	0.00060	0.00206	0.12378	0.00248	2.78163	166.89808	3.33796	0.00010	0.00582	0.00012	167.02034	3.34041
Truck, Mechanics, 1-2 Ton	260	Diesel	1	40	6.00	30.00	On-Road E.F.	0.00709	0.21277	0.00426	0.00071	0.02135	0.00043	0.00001	0.00032	0.00001	0.00009	0.00272	0.00005	0.00006	0.00175	0.00004	0.00075	0.02237	0.00045	1.10087	33.02623	0.66052	0.00007	0.00201	0.00004	33.06849	0.66137
Truck, Pick-Up	180	Gas	2	40	5.00	30.00	On-Road E.F.	0.00709	0.42554	0.00851	0.00071	0.04269	0.00085	0.00001	0.00064	0.00001	0.00009	0.00544	0.00011	0.00006	0.00350	0.00007	0.00075	0.04474	0.00089	1.10087	66.05246	1.32105	0.00007	0.00402	0.00008	66.13697	1.32274
Truck, Semi, Tractor	310	Diesel	2	40	4.00	30.00	On-Road E.F.	0.01408	0.84467	0.01689	0.01577	0.94639	0.01893	0.00003	0.00161	0.00003	0.00060	0.03597	0.00072	0.00050	0.03010	0.00060	0.00206	0.12378	0.00248	2.78163	166.89808	3.33796	0.00010	0.00582	0.00012	167.02034	3.34041
Truck, Sock Line, Puller, 3-Drum	310	Diesel	1	40	2.00	30.00	On-Road E.F.	0.01408	0.42233	0.00845	0.01577	0.47319	0.00946	0.00003	0.00080	0.00002	0.00060	0.01799	0.00036	0.00050	0.01505	0.00030	0.00206	0.06189	0.00124	2.78163	83.44904	1.66898	0.00010	0.00291	0.00006	83.51017	1.67020
Truck, Wire Puller, 3-Drum	310	Diesel	1	40	2.00	30.00	On-Road E.F.	0.01408	0.42233	0.00845	0.01577	0.47319	0.00946	0.00003	0.00080	0.00002	0.00060	0.01799	0.00036	0.00050	0.01505	0.00030	0.00206	0.06189	0.00124	2.78163	83.44904	1.66898	0.00010	0.00291	0.00006	83.51017	1.67020
Worker Vehicles	200	Gas	15	40	8.00	40.00	On-Road E.F.	0.01408	8.44667	0.16893	0.01577	9.46387	0.18928	0.00003	0.01609	0.00032	0.00060	0.35973	0.00719	0.00050	0.30104	0.00602	0.00206	1.23777	0.02476	2.78163	1668.98075	33.37962	0.00010	0.05822	0.00116	1670.20338	33.40407
<SUBTOTAL>									**16.85000**	**0.33700**		**20.95596**	**0.41912**		**0.04408**	**0.00088**		**1.02374**	**0.02047**		**0.88225**	**0.01764**		**3.18458**	**0.06369**		**3238.51466**	**64.77029**		**0.19073**	**0.00381**	**3242.52006**	**64.85040**
Transfer Existing Facilities (Services, Transformers, Taps, Underground, Cutouts, Cap Banks, etc.)				(1 Crew)																																
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	10	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.00106	0.00071	0.02135	0.00011	0.00001	0.00032	0.00000	0.00009	0.00272	0.00001	0.00006	0.00175	0.00001	0.00075	0.02237	0.00011	1.10087	33.02623	0.16513	0.00007	0.00201	0.00001	33.06849	0.16534
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	2	10	5.00	30.00	On-Road E.F.	0.01408	0.84467	0.00422	0.01577	0.94639	0.00473	0.00003	0.00161	0.00001	0.00060	0.03597	0.00018	0.00050	0.03010	0.00015	0.00206	0.12378	0.00062	2.78163	166.89808	0.83449	0.00010	0.00582	0.00003	167.02034	0.83510
Truck, Line, w/Dist. Materials, 1-2 Ton	260	Diesel	1	10	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.00106	0.00071	0.02135	0.00011	0.00001	0.00032	0.00000	0.00009	0.00272	0.00001	0.00006	0.00175	0.00001	0.00075	0.02237	0.00011	1.10087	33.02623	0.16513	0.00007	0.00201	0.00001	33.06849	0.16534
Truck, Pick-Up	180	Gas	1	10	3.00	30.00	On-Road E.F.	0.00709	0.21277	0.00106	0.00071	0.02135	0.00011	0.00001	0.00032	0.00000	0.00009	0.00272	0.00001	0.00006	0.00175	0.00001	0.00075	0.02237	0.00011	1.10087	33.02623	0.16513	0.00007	0.00201	0.00001	33.06849	0.16534
Worker Vehicles	200	Gas	6	10	8.00	40.00	On-Road E.F.	0.01408	3.37867	0.01689	0.01577	3.78555	0.01893	0.00003	0.00644	0.00003	0.00060	0.14389	0.00072	0.00050	0.12042	0.00060	0.00206	0.49511	0.00248	2.78163	667.59230	3.33796	0.00010	0.02329	0.00012	668.08135	3.34041
<SUBTOTAL>									**4.86164**	**0.02431**		**4.79598**	**0.02398**		**0.00901**	**0.00005**		**0.18803**	**0.00094**		**0.15577**	**0.00078**		**0.68600**	**0.00343**		**933.56907**	**4.66785**		**0.03515**	**0.00018**	**934.30715**	**4.67154**
Cleanup				(1 Crew)																																
Loader, Front End, w/ Bucket	165	Diesel	1	15	4.00	-	Off-Road E.F.	0.62735	2.50941	0.01882	0.95013	3.80053	0.02850	0.00120	0.00478	0.00004	0.05351	0.21406	0.00161	89% of PM10	0.19051	0.00143	0.12377	0.49509	0.00371	106.31518	425.26072	3.18946	0.01117	0.04467	0.00034	426.19882	3.19649
Truck, Crew Cab, Flatbed, 1 Ton	180	Gas	1	15	4.00	30.00	On-Road E.F.	0.00709	0.21277	0.00160	0.00071	0.02135	0.00016	0.00001	0.00032	0.00000	0.00009	0.00272	0.00002	0.00006	0.00175	0.00001	0.00075	0.02237	0.00017	1.10087	33.02623	0.24770	0.00007	0.00201	0.00002	33.06849	0.24801
Truck, Dump, 10 Ton	235	Diesel	2	15	4.00	30.00	On-Road E.F.	0.01408	0.84467	0.00634	0.01577	0.94639	0.00710	0.00003	0.00161	0.00001	0.00060	0.03597	0.00027	0.00050	0.03010	0.00023	0.00206	0.12378	0.00093	2.78163	166.89808	1.25174	0.00010	0.00582	0.00004	167.02034	1.25265
Truck, Flatbed, w/ Bucket, 5 Ton	235	Diesel	1	15	4.00	30.00	On-Road E.F.	0.01408	0.42233	0.00317	0.01577	0.47319	0.00355	0.00003	0.00080	0.00001	0.00060	0.01799	0.00013	0.00050	0.01505	0.00011	0.00206	0.06189	0.00046	2.78163	83.44904	0.62587	0.00010	0.00291	0.00002	83.51017	0.62633
Worker Vehicles	200	Gas	3	15	8.00	40.00	On-Road E.F.	0.01408	1.68933	0.01267	0.01577	1.89277	0.01420	0.00003	0.00322	0.00002	0.00060	0.07195	0.00054	0.00050	0.06021	0.00045	0.00206	0.24755	0.00186	2.78163	333.79615	2.50347	0.00010	0.01164	0.00009	334.04068	2.50531
<SUBTOTAL>									**5.67851**	**0.04259**		**7.13423**	**0.05351**		**0.01074**	**0.00008**		**0.34269**	**0.00257**		**0.29763**	**0.00223**		**0.95068**	**0.00713**		**1042.43021**	**7.81823**		**0.06706**	**0.00050**	**1043.83849**	**7.82879**
Operational Maintenance [8]				(1 Crew)																																
Truck, Flatbed, w/ Boom, 5 Ton	125	Diesel	1	40	4.00	40.00	On-Road E.F.	0.01408	0.56311	0.01126	0.01577	0.63092	0.01262	0.00003	0.00107	0.00002	0.00060	0.02398	0.00048	0.00050	0.02007	0.00040	0.00206	0.08252	0.00165	2.78163	111.26538	2.22531	0.00010	0.00388	0.00008	111.34689	2.22694
<TOTAL> [9]									**86.64**	**1.73**		**105.50**	**2.11**		**0.29**	**0.00**		**5.28**	**0.11**		**4.56**	**0.09**		**17.30**	**0.32**		**17,146.93**	**346.96**		**0.98**	**0.02**	**17,167.49**	**347.38**
Single Highest lbs/day Emissions for all Construction Phases [10]									**19.09**			**24.30**			**0.11**			**1.08**			**0.93**			**3.46**			**4,288.83**			**0.21**		**4,293.30**	

Notes:
[1] Data from Power Engineers, Inc. (RTRP_emissions_11 18 2009.xls)
[2] Distance traveled is assumed to be: 30 miles for delivery trucks, 40 miles commuters, and 40 miles for segments that consists of both urban and rural areas.
[3] Emission factors for onroad and offroad vehicles are obtained from SCAQMD websites, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html and http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html, respectively, for year 2010.
[4] Auxillary Power Motor and Air Compressor emissions were obtained from AP-42 Section 3.3, Table 3.3.1
[5] For offroad equipment, PM emission factor was used to calculate PM10 emissions.
[6] The SCAQMD derived default ratio for estimating PM2.5 is that for offroad combustion sources 89 percent of PM_{10} is $PM_{2.5}$.
[7] Global Warming Potential (GWP) assumes a GWP of 1 for CO2 and 21 for CH4, which were obtained from Table 3-1 Greenhouse Gas and Global Warming Potentials: Compendium of Green House Gas Emissions Methodologies for the Oil and Gas Industry dated February 2004 (API 2004).
[8] Operational Maintenance emissions were estimated assuming that one line truck would drive the entire distance of the RTRP 69 kV (2.14 miles) every two weeks as part of on-going operational maintenance activities.
[9] Total Emissions were estimated to be the sum of all of the emission source phases not including Operational Maintenance.
[10] Single Highest lb/day Emissions for all Construction Phases Emissions were calculated as the highest maximum emissions any of the construction phases. The construction phases with the highest daily emissions was determined to be the Foundations phase.

RTRP
Table A-1
69kV Sub-Transmission Line
RERC-Harvey Lynn-Freeman Route
Criteria Air Pollutants GHG Tailpipe Emissions and Fugitive Dust Emissions from Vehicles Traveling on Paved and Unpaved Roads

RTRP I-15 230 kV Project (2014)								Carbon Monoxide (CO)			Nitrogen Oxides (NOx)			Sulfer Oxides (SOx)			Particulate Matter less than 10 Microns (PM10) [5]			Particulate Matter less than 2.5 Microns (PM2.5) [6]			Volatile Organic Compound (VOC)			Carbon Dioxide (CO2)			Methane (CH4)			Carbon Dioxide Equivalent (CO2e) [7]	
Primary Equipment Description [1]	Horsepower [1]	Fuel Type [1]	Primary Equipment Quantity [1]	Estimated Activity Schedule (days) [1]	Estimated Equipment Usage Time (hr/day) [1]	Estimated Distance Traveled (Miles Per Day) [2]	Emission Estimation Methodology [3][4]	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Emission Factor (lb/hr or lb/mile)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)	Pound Per Day Emissions (lb/day)	Total Emissions (Tons)
Survey																																	
Foreman Truck		Gas	1	11	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0021	0.0143	0.4275	0.0024	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0003	2.7985	83.9536	0.4617	0.0001	0.0026	0.0000	84.0091	0.4620
Worker Vehicles		Gas	4	11	8.00	40.00	On-Road E.F.	0.0066	1.0566	0.0058	0.0007	0.1048	0.0006	0.0000	0.0017	0.0000	0.0001	0.0147	0.0001	0.0001	0.0095	0.0001	0.0007	0.1124	0.0006	1.1026	176.4115	0.9703	0.0001	0.0101	0.0001	176.6236	0.9714
<SUBTOTAL>									**1.44**	**0.01**		**0.53**	**0.00**		**0.00**	**0.00**		**0.03**	**0.00**		**0.02**	**0.00**		**0.17**	**0.00**		**260.37**	**1.43**		**0.01**	**0.00**	**260.63**	**1.43**
Marshalling Yard																																	
Foreman Truck		Diesel	1	114	2.00	30.00	On-Road E.F.	0.0128	0.3853	0.0220	0.0143	0.4275	0.0244	0.0000	0.0008	0.0000	0.0005	0.0165	0.0009	0.0005	0.0137	0.0008	0.0019	0.0569	0.0032	2.7985	83.9536	4.7854	0.0001	0.0026	0.0002	84.0091	4.7885
Crane	Comp.	Diesel	1	114	2.00	-	Off-Road E.F.	0.4553	0.9105	0.0519	1.1066	2.2133	0.1262	0.0014	0.0028	0.0002	0.0466	0.0932	0.0053	89% of PM10	0.0830	0.0047	0.1276	0.2551	0.0145	128.6352	257.2704	14.6644	0.0115	0.0230	0.0013	257.7538	14.6920
Rough Terrain Forklift	Comp.	Diesel	1	114	5.00	-	Off-Road E.F.	0.4608	2.3038	0.1313	0.6101	3.0507	0.1739	0.0008	0.0041	0.0002	0.0477	0.2383	0.0136	89% of PM10	0.2121	0.0121	0.0929	0.4643	0.0265	70.2808	351.4039	20.0300	0.0084	0.0419	0.0024	352.2836	20.0802
Delivery Truck		Diesel	1	114	1.00	30.00	On-Road E.F.	0.0128	0.3853	0.0220	0.0143	0.4275	0.0244	0.0000	0.0008	0.0000	0.0005	0.0165	0.0009	0.0005	0.0137	0.0008	0.0019	0.0569	0.0032	2.7985	83.9536	4.7854	0.0001	0.0026	0.0002	84.0091	4.7885
Worker Vehicles		Gas	4	114	8.00	40.00	On-Road E.F.	0.0066	1.0566	0.0602	0.0007	0.1048	0.0060	0.0000	0.0017	0.0001	0.0001	0.0147	0.0008	0.0001	0.0095	0.0005	0.0007	0.1124	0.0064	1.1026	176.4115	10.0555	0.0001	0.0101	0.0006	176.6236	10.0675
<SUBTOTAL>									**5.04**	**0.29**		**6.22**	**0.35**		**0.01**	**0.00**		**0.38**	**0.02**		**0.33**	**0.02**		**0.95**	**0.05**		**952.99**	**54.32**		**0.08**	**0.00**	**954.68**	**54.42**
Roads & Landing Work																																	
Foreman Truck		Diesel	1	29	2.00	30.00	On-Road E.F.	0.0128	0.3853	0.0056	0.0143	0.4275	0.0062	0.0000	0.0008	0.0000	0.0005	0.0165	0.0002	0.0005	0.0137	0.0002	0.0019	0.0569	0.0008	2.7985	83.9536	1.2173	0.0001	0.0026	0.0000	84.0091	1.2181
Grader	Comp.	Diesel	1	29	4.00	-	Off-Road E.F.	0.5987	2.3948	0.0347	1.0796	4.3185	0.0626	0.0015	0.0060	0.0001	0.0539	0.2158	0.0031	89% of PM10	0.1920	0.0028	0.1362	0.5448	0.0079	132.7430	530.9721	7.6991	0.0123	0.0492	0.0007	532.0045	7.7141
Water Truck		Diesel	1	29	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0056	0.0143	0.4275	0.0062	0.0000	0.0008	0.0000	0.0005	0.0165	0.0002	0.0005	0.0137	0.0002	0.0019	0.0569	0.0008	2.7985	83.9536	1.2173	0.0001	0.0026	0.0000	84.0091	1.2181
Backhoe/Front Loader	Comp.	Diesel	1	29	6.00	-	Off-Road E.F.	0.3747	2.2480	0.0326	0.4977	2.9865	0.0433	0.0008	0.0047	0.0001	0.0341	0.2044	0.0030	89% of PM10	0.1819	0.0026	0.0728	0.4368	0.0063	66.8003	400.8019	5.8116	0.0066	0.0394	0.0006	401.6296	5.8236
Compactor/Roller	Comp.	Diesel	1	29	4.00	-	Off-Road E.F.	0.4018	1.6070	0.0233	0.6164	2.4657	0.0358	0.0008	0.0031	0.0000	0.0419	0.1676	0.0024	89% of PM10	0.1492	0.0022	0.0912	0.3648	0.0053	67.0522	268.2086	3.8890	0.0082	0.0329	0.0005	268.8998	3.8990
Dozer	Comp.	Diesel	1	29	6.00	-	Off-Road E.F.	1.1058	6.6351	0.0962	2.3867	14.3200	0.2076	0.0025	0.0147	0.0002	0.0993	0.5959	0.0086	89% of PM10	0.5304	0.0077	0.2854	1.7123	0.0248	239.0938	1,434.5628	20.8012	0.0257	0.1545	0.0022	1,437.8071	20.8482
Lowboy Truck/Trailer		Diesel	1	29	2.00	30.00	On-Road E.F.	0.0128	0.3853	0.0056	0.0143	0.4275	0.0062	0.0000	0.0008	0.0000	0.0005	0.0165	0.0002	0.0005	0.0137	0.0002	0.0019	0.0569	0.0008	2.7985	83.9536	1.2173	0.0001	0.0026	0.0000	84.0091	1.2181
Worker Vehicles		Gas	5	29	8.00	40.00	On-Road E.F.	0.0066	1.3207	0.0192	0.0007	0.1310	0.0019	0.0000	0.0021	0.0000	0.0001	0.0184	0.0003	0.0001	0.0119	0.0002	0.0007	0.1405	0.0020	1.1026	220.5144	3.1975	0.0001	0.0126	0.0002	220.7795	3.2013
<SUBTOTAL>									**15.36**	**0.22**		**25.50**	**0.37**		**0.03**	**0.00**		**1.25**	**0.02**		**1.11**	**0.02**		**3.37**	**0.05**		**3,106.92**	**45.05**		**0.30**	**0.00**	**3,113.15**	**45.14**
Guard Structure Installation																																	
Foreman Truck		Gas	1	4	6.00	30.00	On-Road E.F.	0.0066	0.1981	0.0004	0.0007	0.0196	0.0000	0.0000	0.0003	0.0000	0.0001	0.0028	0.0000	0.0001	0.0018	0.0000	0.0007	0.0211	0.0000	1.1026	33.0772	0.0662	0.0001	0.0019	0.0000	33.1169	0.0662
Foreman Truck		Diesel	1	4	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0008	0.0143	0.4275	0.0009	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1679	0.0001	0.0026	0.0000	84.0091	0.1680
Compressor	Comp.	Diesel	1	4	6.00	-	Off-Road E.F.	0.3313	1.9878	0.0040	0.5635	3.3809	0.0068	0.0007	0.0043	0.0000	0.0396	0.2374	0.0005	89% of PM10	0.2113	0.0004	0.0842	0.5055	0.0010	63.6073	381.6439	0.7633	0.0076	0.0456	0.0001	382.6016	0.7652
Auger Truck		Diesel	1	4	6.00	-	Off-Road E.F.	0.6148	3.6889	0.0074	1.6679	10.0076	0.0200	0.0027	0.0160	0.0000	0.0579	0.3473	0.0007	89% of PM10	0.3091	0.0006	0.2034	1.2202	0.0024	260.0637	1,560.3822	3.1208	0.0183	0.1101	0.0002	1,562.6942	3.1254
Flat Bed Pole Truck		Diesel	1	4	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0008	0.0143	0.4275	0.0009	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1679	0.0001	0.0026	0.0000	84.0091	0.1680
Crane	Comp.	Diesel	1	4	8.00	-	Off-Road E.F.	0.4553	3.6422	0.0073	1.1066	8.8530	0.0177	0.0014	0.0110	0.0000	0.0466	0.3729	0.0007	89% of PM10	0.3319	0.0007	0.1276	1.0204	0.0020	128.6352	1,029.0816	2.0582	0.0115	0.0921	0.0002	1,031.0151	2.0620
Bucket Truck		Diesel	1	4	4.00	30.00	On-Road E.F.	0.0128	0.3853	0.0008	0.0143	0.4275	0.0009	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1679	0.0001	0.0026	0.0000	84.0091	0.1680
Worker Vehicles		Gas	6	4	8.00	40.00	On-Road E.F.	0.0066	1.5848	0.0032	0.0007	0.1572	0.0003	0.0000	0.0026	0.0000	0.0001	0.0220	0.0000	0.0001	0.0143	0.0000	0.0007	0.1685	0.0003	1.1026	264.6173	0.5292	0.0001	0.0151	0.0000	264.9354	0.5299
<SUBTOTAL>									**12.26**	**0.02**		**23.70**	**0.05**		**0.04**	**0.00**		**1.03**	**0.00**		**0.91**	**0.00**		**3.11**	**0.01**		**3,520.66**	**7.04**		**0.27**	**0.00**	**3,526.39**	**7.05**
Install Tubular Steel Pole Foundations																																	
Foreman Truck		Diesel	2	114	2.00	30.00	On-Road E.F.	0.0128	0.7706	0.0439	0.0143	0.8551	0.0487	0.0000	0.0017	0.0001	0.0005	0.0330	0.0019	0.0005	0.0273	0.0016	0.0019	0.1138	0.0065	2.7985	167.9073	9.5707	0.0001	0.0053	0.0003	168.0181	9.5770
Crane	Comp.	Diesel	1	114	5.00	-	Off-Road E.F.	0.4553	2.2763	0.1298	1.1066	5.5331	0.3154	0.0014	0.0069	0.0004	0.0466	0.2331	0.0133	89% of PM10	0.2074	0.0118	0.1276	0.6378	0.0364	128.6352	643.1760	36.6610	0.0115	0.0575	0.0033	644.3844	36.7299
Backhoe/Front Loader	Comp.	Diesel	1	114	8.00	-	Off-Road E.F.	0.3747	2.9973	0.1708	0.4977	3.9820	0.2270	0.0008	0.0062	0.0004	0.0341	0.2725	0.0155	89% of PM10	0.2426	0.0138	0.0728	0.5824	0.0332	66.8003	534.4025	30.4609	0.0066	0.0526	0.0030	535.5061	30.5238
Auger Truck		Diesel	1	114	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0220	0.0143	0.4275	0.0244	0.0000	0.0008	0.0000	0.0005	0.0165	0.0009	0.0005	0.0137	0.0008	0.0019	0.0569	0.0032	2.7985	83.9536	4.7854	0.0001	0.0026	0.0002	84.0091	4.7885
Water Truck		Diesel	1	114	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0220	0.0143	0.4275	0.0244	0.0000	0.0008	0.0000	0.0005	0.0165	0.0009	0.0005	0.0137	0.0008	0.0019	0.0569	0.0032	2.7985	83.9536	4.7854	0.0001	0.0026	0.0002	84.0091	4.7885
Dump Truck		Diesel	1	114	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0220	0.0143	0.4275	0.0244	0.0000	0.0008	0.0000	0.0005	0.0165	0.0009	0.0005	0.0137	0.0008	0.0019	0.0569	0.0032	2.7985	83.9536	4.7854	0.0001	0.0026	0.0002	84.0091	4.7885
Concrete Mixer Truck		Diesel	3	114	5.00	30.00	On-Road E.F.	0.0128	1.1559	0.0659	0.0143	1.2826	0.0731	0.0000	0.0025	0.0001	0.0005	0.0494	0.0028	0.0005	0.0410	0.0023	0.0019	0.1707	0.0097	2.7985	251.8609	14.3561	0.0001	0.0079	0.0005	252.0272	14.3656
Worker Vehicles		Gas	6	114	8.00	40.00	On-Road E.F.	0.0066	1.5848	0.0903	0.0007	0.1572	0.0090	0.0000	0.0026	0.0001	0.0001	0.0220	0.0013	0.0001	0.0143	0.0008	0.0007	0.1685	0.0096	1.1026	264.6173	15.0832	0.0001	0.0151	0.0009	264.9354	15.1013
<SUBTOTAL>									**9.94**	**0.57**		**13.09**	**0.75**		**0.02**	**0.00**		**0.66**	**0.04**		**0.57**	**0.03**		**1.84**	**0.11**		**2,113.82**	**120.49**		**0.15**	**0.01**	**2,116.90**	**120.66**
Steel Pole Haul																																	
Foreman Truck		Gas	1	15	5.00	30.00	On-Road E.F.	0.0066	0.1981	0.0015	0.0007	0.0196	0.0001	0.0000	0.0003	0.0000	0.0001	0.0028	0.0000	0.0001	0.0018	0.0000	0.0007	0.0211	0.0002	1.1026	33.0772	0.2481	0.0001	0.0019	0.0000	33.1169	0.2484
Crane/Boom Truck		Diesel	1	15	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0029	0.0143	0.4275	0.0032	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0004	2.7985	83.9536	0.6297	0.0001	0.0026	0.0000	84.0091	0.6301
Flat Bed Truck/Trailer		Diesel	1	15	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0029	0.0143	0.4275	0.0032	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0004	2.7985	83.9536	0.6297	0.0001	0.0026	0.0000	84.0091	0.6301
Worker Vehicles		Gas	4	15	8.00	40.00	On-Road E.F.	0.0066	1.0566	0.0079	0.0007	0.1048	0.0008	0.0000	0.0017	0.0000	0.0001	0.0147	0.0001	0.0001	0.0095	0.0001	0.0007	0.1124	0.0008	1.1026	176.4115	1.3231	0.0001	0.0101	0.0001	176.6236	1.3247
<SUBTOTAL>									**2.03**	**0.02**		**0.98**	**0.01**		**0.00**	**0.00**		**0.05**	**0.00**		**0.04**	**0.00**		**0.25**	**0.00**		**377.40**	**2.83**		**0.02**	**0.00**	**377.76**	**2.83**
Steel Pole Assembly																																	
Foreman Truck		Gas	2	29	5.00	30.00	On-Road E.F.	0.0066	0.3962	0.0057	0.0007	0.0393	0.0006	0.0000	0.0006	0.0000	0.0001	0.0055	0.0001	0.0001	0.0036	0.0001	0.0007	0.0421	0.0006	1.1026	66.1543	0.9592	0.0001	0.0038	0.0001	66.2338	0.9604
Foreman Truck		Diesel	2	29	5.00	30.00	On-Road E.F.	0.0128	0.7706	0.0112	0.0143	0.8551	0.0124	0.0000	0.0017	0.0000	0.0005	0.0330	0.0005	0.0005	0.0273	0.0004	0.0019	0.1138	0.0016	2.7985	167.9073	2.4347	0.0001	0.0053	0.0001	168.0181	2.4363
Compressor	Comp.	Diesel	1	29	5.00	-	Off-Road E.F.	0.3313	1.6565	0.0240	0.5635	2.8174	0.0409	0.0007	0.0036	0.0001	0.0396	0.1978	0.0029	89% of PM10	0.1761	0.0026	0.0842	0.4212	0.0061	63.6073	318.0366	4.6115	0.0076	0.0380	0.0006	318.8347	4.6231
Crane/Boom Truck		Diesel	1	29	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0056	0.0143	0.4275	0.0062	0.0000	0.0008	0.0000	0.0005	0.0165	0.0002	0.0005	0.0137	0.0002	0.0019	0.0569	0.0008	2.7985	83.9536	1.2173	0.0001	0.0026	0.0000	84.0091	1.2181
Worker Vehicles		Gas	8	29	8.00	40.00	On-Road E.F.	0.0066	2.1131	0.0306	0.0007	0.2095	0.0030	0.0000	0.0034	0.0000	0.0001	0.0294	0.0004	0.0001	0.0190	0.0003	0.0007	0.2247	0.0033	1.1026	352.8231	5.1159	0.0001	0.0202	0.0003	353.2472	5.1221
<SUBTOTAL>									**5.32**	**0.08**		**4.35**	**0.06**		**0.01**	**0.00**		**0.28**	**0.00**		**0.24**	**0.00**		**0.86**	**0.01**		**988.87**	**14.34**		**0.07**	**0.00**	**990.34**	**14.36**
Steel Pole Erection																																	
Foreman Pickup		Gas	2	29	5.00	30.00	On-Road E.F.	0.0066	0.3962	0.0057	0.0007	0.0393	0.0006	0.0000	0.0006	0.0000	0.0001	0.0055	0.0001	0.0001	0.0036	0.0001	0.0007	0.0421	0.0006	1.1026	66.1543	0.9592	0.0001	0.0038	0.0001	66.2338	0.9604
Foreman Pickup		Diesel	2	29	5.00	30.00	On-Road E.F.	0.0128	0.7706	0.0112	0.0143	0.8551	0.0124	0.0000	0.0017	0.0000	0.0005	0.0330	0.0005	0.0005	0.0273	0.0004	0.0019	0.1138	0.0016	2.7985	167.9073	2.4347	0.0001	0.0053	0.0001	168.0181	2.4363
Compressor	Comp.	Diesel	1	29	5.00	-	Off-Road E.F.	0.3313	1.6565	0.0240	0.5635	2.8174	0.0409	0.0007	0.0036	0.0001	0.0396	0.1978	0.0029	89% of PM10	0.1761	0.0026	0.0842	0.4212	0.0061	63.6073	318.0366	4.6115	0.0076	0.0380	0.0006	318.8347	4.6231
Crane	Comp.	Diesel	1	29	6.00	-	Off-Road E.F.	0.4553	2.7316	0.0396	1.1066	6.6398	0.0963	0.0014	0.0083	0.0001	0.0466	0.2797	0.0041	89% of PM10	0.2489	0.0036	0.1276	0.7653	0.0111	128.6352	771.8112	11.1913	0.0115	0.0691	0.0010	773.2613	11.2123
Worker Vehicles		Gas	8	29	8.00	40.00	On-Road E.F.	0.0066	2.1131	0.0306	0.0007	0.2095	0.0030	0.0000	0.0034	0.0000	0.0001	0.0294	0.0004	0.0001	0.0190	0.0003	0.0007	0.2247	0.0033	1.1026	352.8231	5.1159	0.0001	0.0202	0.0003	353.2472	5.1221
<SUBTOTAL>									**7.67**	**0.11**		**10.56**	**0.15**		**0.02**	**0.00**		**0.55**	**0.01**		**0.47**	**0.01**		**1.57**	**0.02**		**1,676.73**	**24.31**		**0.14**	**0.00**	**1,679.60**	**24.35**
Install LST Foundations																																	
Foreman Pickup		Diesel	2	48	2.00	30.00	On-Road E.F.	0.0128	0.7706	0.0185	0.0143	0.8551	0.0205	0.0000	0.0017	0.0000	0.0005	0.0330	0.0008	0.0005	0.0273	0.0007	0.0019	0.1138	0.0027	2.7985	167.9073	4.0298	0.0001	0.0053	0.0001	168.0181	4.0324
Crane/Boom Truck		Diesel	1	48	5.00	30.00	On-Road E.F.	0.0128	0.3853	0.0092	0.0143	0.4275	0.0103	0.0000	0.0008	0.0000	0.0005	0.0165	0.0004	0.0005	0.0137	0.0003	0.0019	0.0569	0.0014	2.7985	83.9536	2.0149	0.0001	0.0026	0.0001	84.0091	2.0162
Backhoe/Front Loader	Comp.	Diesel	1	48	8.00	-	Off-Road E.F.	0.3747	2.9973	0.0719	0.4977	3.9820	0.0956	0.0008	0.0062	0.0001	0.0341	0.2725	0.0065	89% of PM10	0.2426	0.0058	0.0728	0.5824	0.0140	66.8003	534.4025	12.8257	0.0066	0.0526	0.0013	535.5061	12.8521
Auger Truck		Diesel	1	48	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0092	0.0143	0.4275	0.0103	0.0000	0.0008	0.0000	0.0005	0.0165	0.0004	0.0005	0.0137	0.0003	0.0019	0.0569	0.0014	2.7985	83.9536	2.0149	0.0001	0.0026	0.0001	84.0091	2.0162
Water Truck		Diesel	1	48	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0092	0.0143	0.4275	0.0103	0.0000	0.0008	0.0000	0.0005	0.0165	0.0004	0.0005	0.0137	0.0003	0.0019	0.0569	0.0014	2.7985	83.9536	2.0149	0.0001	0.0026	0.0001	84.0091	2.0162
Dump Truck		Diesel	1	48	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0092	0.0143	0.4275	0.0103	0.0000	0.0008	0.0000	0.0005	0.0165	0.0004	0.0005	0.0137	0.0003	0.0019	0.0569	0.0014	2.7985	83.9536	2.0149	0.0001	0.0026	0.0001	84.0091	2.0162
Concrete Mixer Truck		Diesel	3	48	5.00	30.00	On-Road E.F.	0.0128	1.1559	0.0277	0.0143	1.2826	0.0308	0.0000	0.0025	0.0001	0.0005	0.0494	0.0012	0.0005	0.0410	0.0010	0.0019	0.1707	0.0041	2.7985	251.8609	6.0447	0.0001	0.0079	0.0002	252.0272	6.0487
Worker Vehicles		Gas	7	48	8.00	40.00	On-Road E.F.	0.0066	1.8490	0.0444	0.0007	0.1834	0.0044	0.0000	0.0030	0.0001	0.0001	0.0257	0.0006	0.0001	0.0166	0.0004	0.0007	0.1966	0.0047	1.1026	308.7202	7.4093	0.0001	0.0177	0.0004	309.0913	7.4182
<SUBTOTAL>									**8.31**	**0.20**		**8.01**	**0.19**		**0.02**	**0.00**		**0.45**	**0.01**		**0.38**	**0.01**		**1.29**	**0.03**		**1,598.71**	**38.37**		**0.09**	**0.00**	**1,600.68**	**38.42**
LST Steel Haul																																	
Foreman Pickup		Diesel	1	24	2.00	30.00	On-Road E.F.	0.0128	0.3853	0.0046	0.0143	0.4275	0.0051	0.0000	0.0008	0.0000	0.0005	0.0165	0.0002	0.0005	0.0137	0.0002	0.0019	0.0569	0.0007	2.7985	83.9536	1.0074	0.0001	0.0026	0.0000	84.0091	1.0081
RT Crane/Forklift	Comp.	Diesel	1	24	6.00	-	Off-Road E.F.	0.4553	2.7316	0.0328	1.1066	6.6398	0.0797	0.0014	0.0083	0.0001	0.0466	0.2797	0.0034	89% of PM10	0.2489	0.0030	0.1276	0.7653	0.0092	128.6352	771.8112	9.2617	0.0115	0.0691	0.0008	773.2613	9.2791
Flat Bed Truck/Trailer		Diesel	1	24	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0046	0.0143	0.4275	0.0051	0.0000	0.0008	0.0000	0.0005	0.0165	0.0002	0.0005	0.0137	0.0002	0.0019	0.0569	0.0007	2.7985	83.9536	1.0074	0.0001	0.0026	0.0000	84.0091	1.0081
Worker Vehicles		Gas	4	24	8.00	40.00	On-Road E.F.	0.0066	1.0566	0.0127	0.0007	0.1048	0.0013	0.0000	0.0017	0.0000	0.0001	0.0147	0.0002	0.0001	0.0095	0.0001	0.0007	0.1124	0.0013	1.1026	176.4115	2.1169	0.0001	0.0101	0.0001	176.6236	2.1195
<SUBTOTAL>									**4.56**	**0.05**		**7.60**	**0.09**		**0.01**	**0.00**		**0.33**	**0.00**		**0.29**	**0.00**		**0.99**	**0.01**		**1,116.13**	**13.39**		**0.08**	**0.00**	**1,117.90**	**13.41**
LST Steel Assembly																																	
Foreman Pickup		Gas	2	48	4.00	30.00	On-Road E.F.	0.0066	0.3962	0.0095	0.0007	0.0393	0.0009	0.0000	0.0006	0.0000	0.0001	0.0055	0.0001	0.0001	0.0036	0.0001	0.0007	0.0421	0.0010	1.1026	66.1543	1.5877	0.0001	0.0038	0.0001	66.2338	1.5896
Foreman Pickup		Diesel	2	48	4.00	30.00	On-Road E.F.	0.0128	0.7706	0.0185	0.0143	0.8551	0.0205	0.0000	0.0017	0.0000	0.0005	0.0330	0.0008	0.0005	0.0273	0.0007	0.0019	0.1138	0.0027	2.7985	167.9073	4.0298	0.0001	0.0053	0.0001	168.0181	4.0324
RT Crane/Forklift	Comp.	Diesel	1	48	6.00	-	Off-Road E.F.	0.4553	2.7316	0.0656	1.1066	6.6398	0.1594	0.0014	0.0083	0.0002	0.0466	0.2797	0.0067	89% of PM10	0.2489	0.0060	0.1276	0.7653	0.0184	128.6352	771.8112	18.5235	0.0115	0.0691	0.0017	773.2613	18.5583
RT Crane	Comp.	Diesel	1	48	8.00	-	Off-Road E.F.	0.4553	3.6422	0.0874	1.1066	8.8530	0.2125	0.0014	0.0110	0.0003	0.0466	0.3729	0.0090	89% of PM10	0.3319	0.0080	0.1276	1.0204	0.0245	128.6352	1,029.0816	24.6980	0.0115	0.0921	0.0022	1,031.0151	24.7444
Compressor	Comp.	Diesel	1	48	6.00	-	Off-Road E.F.	0.3313	1.9878	0.0477	0.5635	3.3809	0.0811	0.0007	0.0043	0.0001	0.0396	0.2374	0.0057	89% of PM10	0.2113	0.0051	0.0842	0.5055	0.0121	63.6073	381.6439	9.1595	0.0076	0.0456	0.0011	382.6016	9.1824
Worker Vehicles		Gas	10	48	8.00	40.00	On-Road E.F.	0.0066	2.6414	0.0634	0.0007	0.2619	0.0063	0.0000	0.0043	0.0001	0.0001	0.0367	0.0009	0.0001	0.0238	0.0006	0.0007	0.2809	0.0067	1.1026	441.0288	10.5847	0.0001	0.0252	0.0006	441.5590	10.5974
<SUBTOTAL>									**12.17**	**0.29**		**20.03**	**0.48**		**0.03**	**0.00**		**0.97**	**0.02**		**0.85**	**0.02**		**2.73**	**0.07**		**2,857.63**	**68.58**		**0.24**	**0.01**	**2,862.69**	**68.70**
LST Erection																																	
Foreman Pickup		Gas	2	24	5.00	30.00	On-Road E.F.	0.0066	0.3962	0.0048	0.0007	0.0393	0.0005	0.0000	0.0006	0.0000	0.0001	0.0055	0.0001	0.0001	0.0036	0.0000	0.0007	0.0421	0.0005	1.1026	66.1543	0.7939	0.0001	0.0038	0.0000	66.2338	0.7948
Foreman Pickup		Diesel	3	24	5.00	30.00	On-Road E.F.	0.0128	1.1559	0.0139	0.0143	1.2826	0.0154	0.0000	0.0025	0.0000	0.0005	0.0494	0.0006	0.0005	0.0410	0.0005	0.0019	0.1707	0.0020	2.7985	251.8609	3.0223	0.0001	0.0079	0.0001	252.0272	3.0243
Compressor	Comp.	Diesel	1	24	6.00	-	Off-Road E.F.	0.3313	1.9878	0.0239	0.5635	3.3809	0.0406	0.0007	0.0043	0.0001	0.0396	0.2374	0.0028	89% of PM10	0.2113	0.0025	0.0842	0.5055	0.0061	63.6073	381.6439	4.5797	0.0076	0.0456	0.0005	382.6016	4.5912
Crane	Comp.	Diesel	1	24	6.00	-	Off-Road E.F.	0.4553	2.7316	0.0328	1.1066	6.6398	0.0797	0.0014	0.0083	0.0001	0.0466	0.2797	0.0034	89% of PM10	0.2489	0.0030	0.1276	0.7653	0.0092	128.6352	771.8112	9.2617	0.0115	0.0691	0.0008	773.2613	9.2791
Worker Vehicles		Gas	12	24	8.00	40.00	On-Road E.F.	0.0066	3.1697	0.0380	0.0007	0.3143	0.0038	0.0000	0.0051	0.0001	0.0001	0.0441	0.0005	0.0001	0.0286	0.0003	0.0007	0.3371	0.0040	1.1026	529.2346	6.3508	0.0001	0.0303	0.0004	529.8708	6.3584
<SUBTOTAL>									**9.44**	**0.11**		**11.66**	**0.14**		**0.02**	**0.00**		**0.62**	**0.01**		**0.53**	**0.01**		**1.82**	**0.02**		**2,000.70**	**24.01**		**0.16**	**0.00**	**2,003.99**	**24.05**
Modify Existing LST																																	

RTRP
Table A-1
69kV Sub-Transmission Line
RERC-Harvey Lynn-Freeman Route
Criteria Air Pollutants GHG Tailpipe Emissions and Fugitive Dust Emissions from Vehicles Traveling on Paved and Unpaved Roads

Foreman Pickup		Gas	2	10	4.00	30.00	On-Road E.F.	0.0066	0.3962	0.0020	0.0007	0.0393	0.0002	0.0000	0.0006	0.0000	0.0001	0.0055	0.0000	0.0001	0.0036	0.0000	0.0007	0.0421	0.0002	1.1026	66.1543	0.3308	0.0001	0.0038	0.0000	66.2338	0.3312
Foreman Pickup		Diesel	2	10	4.00	30.00	On-Road E.F.	0.0128	0.7706	0.0039	0.0143	0.8551	0.0043	0.0000	0.0017	0.0000	0.0005	0.0330	0.0002	0.0005	0.0273	0.0001	0.0019	0.1138	0.0006	2.7985	167.9073	0.8395	0.0001	0.0053	0.0000	168.0181	0.8401
Crane/Boom Truck		Diesel	1	10	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0019	0.0143	0.4275	0.0021	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0003	2.7985	83.9536	0.4198	0.0001	0.0026	0.0000	84.0091	0.4200
Bucket Truck		Diesel	2	10	8.00	30.00	On-Road E.F.	0.0128	0.7706	0.0039	0.0143	0.8551	0.0043	0.0000	0.0017	0.0000	0.0005	0.0330	0.0002	0.0005	0.0273	0.0001	0.0019	0.1138	0.0006	2.7985	167.9073	0.8395	0.0001	0.0053	0.0000	168.0181	0.8401
Sag Cat w/ 2 Winches	Comp.	Diesel	2	10	2.00	-	Off-Road E.F.	0.3697	1.4790	0.0074	0.7168	2.8674	0.0143	0.0013	0.0051	0.0000	0.0296	0.1183	0.0006	89% of PM11	0.1053	0.0005	0.0820	0.3278	0.0016	122.6316	490.5265	2.4526	0.0074	0.0296	0.0001	491.1477	2.4557
Compressor	Comp.	Diesel	1	10	6.00	-	Off-Road E.F.	0.3313	1.9878	0.0099	0.5635	3.3809	0.0169	0.0007	0.0043	0.0000	0.0396	0.2374	0.0012	89% of PM10	0.2113	0.0011	0.0842	0.5055	0.0025	63.6073	381.6439	1.9082	0.0076	0.0456	0.0002	382.6016	1.9130
Worker Vehicles		Gas	10	10	8.00	40.00	On-Road E.F.	0.0066	2.6414	0.0132	0.0007	0.2619	0.0013	0.0000	0.0043	0.0000	0.0001	0.0367	0.0002	0.0001	0.0238	0.0001	0.0007	0.2809	0.0014	1.1026	441.0288	2.2051	0.0001	0.0252	0.0001	441.5590	2.2078
<SUBTOTAL>									**8.43**	**0.04**		**8.69**	**0.04**		**0.02**	**0.00**		**0.48**	**0.00**		**0.41**	**0.00**		**1.44**	**0.01**		**1,799.12**	**9.00**		**0.12**	**0.00**	**1,801.59**	**9.01**
Install Conductor & OPGW																																
Foreman Pickup		Gas	4	32	4.00	30.00	On-Road E.F.	0.0066	0.7924	0.0127	0.0007	0.0786	0.0013	0.0000	0.0013	0.0000	0.0001	0.0110	0.0002	0.0001	0.0071	0.0001	0.0007	0.0843	0.0013	1.1026	132.3086	2.1169	0.0001	0.0076	0.0001	132.4677	2.1195
Foreman Pickup		Diesel	6	32	4.00	30.00	On-Road E.F.	0.0128	2.3118	0.0370	0.0143	2.5653	0.0410	0.0000	0.0050	0.0001	0.0005	0.0989	0.0016	0.0005	0.0819	0.0013	0.0019	0.3414	0.0055	2.7985	503.7218	8.0595	0.0001	0.0158	0.0003	504.0544	8.0649
Wire Truck/Trailer		Diesel	4	21	4.00	30.00	On-Road E.F.	0.0128	1.5412	0.0162	0.0143	1.7102	0.0180	0.0000	0.0033	0.0000	0.0005	0.0659	0.0007	0.0005	0.0546	0.0006	0.0019	0.2276	0.0024	2.7985	335.8146	3.5261	0.0001	0.0106	0.0001	336.0363	3.5284
Bucket Truck		Diesel	4	32	8.00	30.00	On-Road E.F.	0.0128	1.5412	0.0247	0.0143	1.7102	0.0274	0.0000	0.0033	0.0001	0.0005	0.0659	0.0011	0.0005	0.0546	0.0009	0.0019	0.2276	0.0036	2.7985	335.8146	5.3730	0.0001	0.0106	0.0002	336.0363	5.3766
Crane/Boom Truck		Diesel	4	32	8.00	30.00	On-Road E.F.	0.0128	1.5412	0.0247	0.0143	1.7102	0.0274	0.0000	0.0033	0.0001	0.0005	0.0659	0.0011	0.0005	0.0546	0.0009	0.0019	0.2276	0.0036	2.7985	335.8146	5.3730	0.0001	0.0106	0.0002	336.0363	5.3766
Rough Terrain Crane	Comp.	Diesel	2	32	4.00	-	Off-Road E.F.	0.4553	3.6422	0.0583	1.1066	8.8530	0.1416	0.0014	0.0110	0.0002	0.0466	0.3729	0.0060	89% of PM10	0.3319	0.0053	0.1276	1.0204	0.0163	128.6352	1,029.0816	16.4653	0.0115	0.0921	0.0015	1,031.0151	16.4962
Dump Truck		Diesel	1	32	4.00	30.00	On-Road E.F.	0.0128	0.3853	0.0062	0.0143	0.4275	0.0068	0.0000	0.0008	0.0000	0.0005	0.0165	0.0003	0.0005	0.0137	0.0002	0.0019	0.0569	0.0009	2.7985	83.9536	1.3433	0.0001	0.0026	0.0000	84.0091	1.3441
3 Drum Sock Line Puller	Comp.	Diesel	1	11	6.00	-	Off-Road E.F.	0.3697	2.2185	0.0122	0.7168	4.3011	0.0237	0.0013	0.0076	0.0000	0.0296	0.1774	0.0010	89% of PM10	0.1579	0.0009	0.0820	0.4917	0.0027	122.6316	735.7898	4.0468	0.0074	0.0444	0.0002	736.7215	4.0520
Bull Wheel Puller	Comp.	Diesel	1	21	6.00	-	Off-Road E.F.	0.3697	2.2185	0.0233	0.7168	4.3011	0.0452	0.0013	0.0076	0.0001	0.0296	0.1774	0.0019	89% of PM10	0.1579	0.0017	0.0820	0.4917	0.0052	122.6316	735.7898	7.7258	0.0074	0.0444	0.0005	736.7215	7.7356
Static Truck/Tensioner		Diesel	1	32	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0062	0.0143	0.4275	0.0068	0.0000	0.0008	0.0000	0.0005	0.0165	0.0003	0.0005	0.0137	0.0002	0.0019	0.0569	0.0009	2.7985	83.9536	1.3433	0.0001	0.0026	0.0000	84.0091	1.3441
Splicing Rig	Comp.	Diesel	1	9	8.00	-	Off-Road E.F.	0.3697	2.9580	0.0133	0.7168	5.7348	0.0258	0.0013	0.0101	0.0000	0.0296	0.2366	0.0011	89% of PM10	0.2106	0.0009	0.0820	0.6556	0.0030	122.6316	981.0531	4.4147	0.0074	0.0592	0.0003	982.2953	4.4203
Backhoe/Front Loader	Comp.	Diesel	1	32	3.00	-	Off-Road E.F.	0.3747	1.1240	0.0180	0.4977	1.4932	0.0239	0.0008	0.0023	0.0000	0.0341	0.1022	0.0016	89% of PM10	0.0910	0.0015	0.0728	0.2184	0.0035	66.8003	200.4009	3.2064	0.0066	0.0197	0.0003	200.8148	3.2130
Sag Cat w/ 2 Winches	Comp.	Diesel	2	16	2.00	-	Off-Road E.F.	0.3697	1.4790	0.0118	0.7168	2.8674	0.0229	0.0013	0.0051	0.0000	0.0296	0.1183	0.0009	89% of PM10	0.1053	0.0008	0.0820	0.3278	0.0026	122.6316	490.5265	3.9242	0.0074	0.0296	0.0002	491.1477	3.9292
Lowboy Truck/Trailer		Diesel	3	16	4.00	30.00	On-Road E.F.	0.0128	1.1559	0.0092	0.0143	1.2826	0.0103	0.0000	0.0025	0.0000	0.0005	0.0494	0.0004	0.0005	0.0410	0.0003	0.0019	0.1707	0.0014	2.7985	251.8609	2.0149	0.0001	0.0079	0.0001	252.0272	2.0162
Hughes 500E Helicopter		Jet A	1	18	6.00	-	FAA EDMS	1.1400	6.8400	0.0616	3.7470	22.4820	0.2023	0.0040	0.0240	0.0002	0.1160	0.6960	0.0063	89% of PM10	0.6194	0.0056	0.3010	1.8060	0.0163	384.0000	2,304.0000	20.7360		0.0000	0.0000	2,304.0000	20.7360
Helicopter Support Truck		Diesel	1	18	4.00	30.00	On-Road E.F.	0.0128	0.3853	0.0035	0.0143	0.4275	0.0038	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0005	2.7985	83.9536	0.7556	0.0001	0.0026	0.0000	84.0091	0.7561
Worker Vehicles		Gas	55	32	8.00	40.00	On-Road E.F.	0.0066	14.5278	0.2324	0.0007	1.4407	0.0231	0.0000	0.0235	0.0004	0.0001	0.2021	0.0032	0.0001	0.1307	0.0021	0.0007	1.5450	0.0247	1.1026	2,425.6585	38.8105	0.0001	0.1389	0.0022	2,428.5744	38.8572
<SUBTOTAL>									**45.05**	**0.57**		**61.81**	**0.65**		**0.11**	**0.00**		**2.49**	**0.03**		**2.14**	**0.02**		**8.01**	**0.09**		**11,049.50**	**129.24**		**0.50**	**0.01**	**11,059.98**	**129.37**
Guard Structure Removal																																
Foreman Pickup		Gas	3	3	6.00	30.00	On-Road E.F.	0.0066	0.1981	0.0003	0.0007	0.0196	0.0000	0.0000	0.0003	0.0000	0.0001	0.0028	0.0000	0.0001	0.0018	0.0000	0.0007	0.0211	0.0000	1.1026	33.0772	0.0496	0.0001	0.0019	0.0000	33.1169	0.0497
Foreman Pickup		Diesel	1	3	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0006	0.0143	0.4275	0.0006	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1259	0.0001	0.0026	0.0000	84.0091	0.1260
Compressor	Comp.	Diesel	1	3	6.00	-	Off-Road E.F.	0.3313	1.9878	0.0030	0.5635	3.3809	0.0051	0.0007	0.0043	0.0000	0.0396	0.2374	0.0004	89% of PM10	0.2113	0.0003	0.0842	0.5055	0.0008	63.6073	381.6439	0.5725	0.0076	0.0456	0.0001	382.6016	0.5739
Flat Bed Pole Truck		Diesel	1	3	6.00	30.00	On-Road E.F.	0.0128	0.3853	0.0006	0.0143	0.4275	0.0006	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1259	0.0001	0.0026	0.0000	84.0091	0.1260
Crane/Boom Truck		Diesel	1	3	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0006	0.0143	0.4275	0.0006	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1259	0.0001	0.0026	0.0000	84.0091	0.1260
Bucket Truck		Diesel	1	3	4.00	30.00	On-Road E.F.	0.0128	0.3853	0.0006	0.0143	0.4275	0.0006	0.0000	0.0008	0.0000	0.0005	0.0165	0.0000	0.0005	0.0137	0.0000	0.0019	0.0569	0.0001	2.7985	83.9536	0.1259	0.0001	0.0026	0.0000	84.0091	0.1260
Worker Vehicles		Gas	6	3	8.00	40.00	On-Road E.F.	0.0066	1.5848	0.0024	0.0007	0.1572	0.0002	0.0000	0.0026	0.0000	0.0001	0.0220	0.0000	0.0001	0.0143	0.0000	0.0007	0.1685	0.0003	1.1026	264.6173	0.3969	0.0001	0.0151	0.0000	264.9354	0.3974
<SUBTOTAL>									**5.31**	**0.01**		**5.27**	**0.01**		**0.01**	**0.00**		**0.33**	**0.00**		**0.28**	**0.00**		**0.92**	**0.00**		**1,015.15**	**1.52**		**0.07**	**0.00**	**1,016.69**	**1.53**
Restoration																																
Foreman Pickup		Diesel	2	11	2.00	30.00	On-Road E.F.	0.0128	0.7706	0.0042	0.0143	0.8551	0.0047	0.0000	0.0017	0.0000	0.0005	0.0330	0.0002	0.0005	0.0273	0.0002	0.0019	0.1138	0.0006	2.7985	167.9073	0.9235	0.0001	0.0053	0.0000	168.0181	0.9241
Road Grader	Comp.	Diesel	1	11	6.00	-	Off-Road E.F.	0.5987	3.5922	0.0198	1.0796	6.4777	0.0356	0.0015	0.0090	0.0000	0.0539	0.3237	0.0018	89% of PM10	0.2881	0.0016	0.1362	0.8172	0.0045	132.7430	796.4582	4.3805	0.0123	0.0737	0.0004	798.0067	4.3890
Water Truck		Diesel	1	11	8.00	30.00	On-Road E.F.	0.0128	0.3853	0.0021	0.0143	0.4275	0.0024	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0003	2.7985	83.9536	0.4617	0.0001	0.0026	0.0000	84.0091	0.4620
Backhoe/Front Loader	Comp.	Diesel	1	11	6.00	-	Off-Road E.F.	0.3747	2.2480	0.0124	0.4977	2.9865	0.0164	0.0008	0.0047	0.0000	0.0341	0.2044	0.0011	89% of PM10	0.1819	0.0010	0.0728	0.4368	0.0024	66.8003	400.8019	2.2044	0.0066	0.0394	0.0002	401.6296	2.2090
Drum Type Compactor	Comp.	Diesel	1	11	6.00	-	Off-Road E.F.	0.4018	2.4106	0.0133	0.6164	3.6985	0.0203	0.0008	0.0046	0.0000	0.0419	0.2514	0.0014	89% of PM10	0.2237	0.0012	0.0912	0.5471	0.0030	67.0522	402.3130	2.2127	0.0082	0.0494	0.0003	403.3497	2.2184
Track Type Dozer	Comp.	Diesel	1	11	6.00	-	Off-Road E.F.	1.1058	6.6351	0.0365	2.3867	14.3200	0.0788	0.0025	0.0147	0.0001	0.0993	0.5959	0.0033	89% of PM10	0.5304	0.0029	0.2854	1.7123	0.0094	239.0938	1,434.5628	7.8901	0.0257	0.1545	0.0008	1,437.8071	7.9079
Lowboy Truck/Trailer		Diesel	1	11	3.00	30.00	On-Road E.F.	0.0128	0.3853	0.0021	0.0143	0.4275	0.0024	0.0000	0.0008	0.0000	0.0005	0.0165	0.0001	0.0005	0.0137	0.0001	0.0019	0.0569	0.0003	2.7985	83.9536	0.4617	0.0001	0.0026	0.0000	84.0091	0.4620
Worker Vehicles		Gas	7	11	8.00	40.00	On-Road E.F.	0.0066	1.8490	0.0102	0.0007	0.1834	0.0010	0.0000	0.0030	0.0000	0.0001	0.0257	0.0001	0.0001	0.0166	0.0001	0.0007	0.1966	0.0011	1.1026	308.7202	1.6980	0.0001	0.0177	0.0001	309.0913	1.7000
<SUBTOTAL>									**18.28**	**0.10**		**29.38**	**0.16**		**0.04**	**0.00**		**1.47**	**0.01**		**1.30**	**0.01**		**3.94**	**0.02**		**3,678.67**	**20.23**		**0.35**	**0.00**	**3,685.92**	**20.27**
Single Highest lbs/day Emissions for all Construction Phases [10]									**45.05**			**61.81**			**0.11**			**2.49**			**2.14**			**8.01**								

Notes:
[1] Data from Power Engineers, Inc. (RTRP_Teardown & Construct Equip & Activity Table_REV10_KJK_3-7-11.doc)
[2] Distance traveled is assumed to be: 30 miles for delivery trucks and 40 miles commuters.
[3] Emission factors for onroad and offroad vehicles are obtained from SCAQMD websites, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html and http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html, respectively, for year 2011.
[4] For offroad equipment, PM emission factor was used to calculate PM10 emissions.
[5] The SCAQMD derived default ratio for estimating PM2.5 is that for offroad combustion sources 89 percent of PM_{10} is $PM_{2.5}$.
[6] Carbon Dioxide Equivalentt (CO2e) assumes a GWP of 1 for CO2 and 21 for CH4, which were obtained from Table 3-1 Greenhouse Gas and Global Warming Potentials: Compendium of Green House Gas Emissions Methodologies for the Oil and Gas Industry dated February 2004 (API 2004).
[7] Total Emissions were estimated to be the sum of all of the emission source phases not including Operational Maintenance.
[8] Single Highest lb/day Emissions for all Construction Phases Emissions were calculated as the highest maximum emissions any of the construction phases. The construction phases with the highest daily emissions was determined to be the Install Conductor & OPGW Phase.

RTRP
Table A-5
230kV Substation
Wilderness Substation
Criteria Air Pollutant Emissions and Fugitive Dust Emissions from Vehicles Traveling on Paved and Unpaved Roads

RTRP Wilderness & Wildlife Substation Projects (2014)				***(Construction Area = 9.6 Acres)***			**Emission Estimation Methodology [3],[4]**	**Carbon Monoxide (CO)**			**Nitrogen Oxides (NOx)**			**Sulfer Oxides (SOx)**			**Particulate Matter less than 10 Microns (PM10) [5]**			**Particulate Matter less than 2.5 Microns (PM2.5) [6]**			**Volatile Organic Compound (VOC)**			**Carbon Dioxide (CO2)**			**Methane (CH4)**			**Global Warming Potential (GWP) [7]**	
Primary Equipment Description [1]	**Horsepower [1]**	**Fuel Type [1]**	**Primary Equipment Quantity [1]**	**Estimated Activity Schedule (days) [1]**	**Estimated Equipment Usage Time (hr/day) [1]**	**Estimated Distance Traveled (miles/day) [2]**		**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Emission Factor (lb/hr or lb/mile)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**	**Pound Per Day Emissions (lb/day)**	**Total Emissions (Tons)**
Marshalling Yard					(1 Crew)																												
Forklift, 5 Ton	200	Diesel	1	140	1.00	-	Off-Road E.F.	0.22149	0.22149	0.01550	0.35506	0.35506	0.02485	0.00060	0.00060	0.00004	0.01784	0.01784	0.00125	89% of PM10	0.01588	0.00111	0.04970	0.04970	0.00348	54.39576	54.39576	3.80770	0.00448	0.00448	0.00031	54.48993	3.81430
Truck, Flat Bed, 1 Ton	300	Diesel	1	140	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.01387	0.00065	0.01965	0.00138	0.00001	0.00032	0.00002	0.00009	0.00276	0.00019	0.00006	0.00178	0.00012	0.00070	0.02107	0.00147	1.10257	33.07716	2.31540	0.00006	0.00189	0.00013	33.11692	2.31818
Truck, Pick-Up	200	Gas	1	140	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.01387	0.00065	0.01965	0.00138	0.00001	0.00032	0.00002	0.00009	0.00276	0.00019	0.00006	0.00178	0.00012	0.00070	0.02107	0.00147	1.10257	33.07716	2.31540	0.00006	0.00189	0.00013	33.11692	2.31818
Worker Vehicles	200	Gas	2	140	8.00	40.00	On-Road E.F.	0.01284	1.02746	0.07192	0.01425	1.14013	0.07981	0.00003	0.00220	0.00015	0.00055	0.04394	0.00308	0.00046	0.03642	0.00255	0.00190	0.15172	0.01062	2.79845	223.87637	15.67135	0.00009	0.00704	0.00049	224.02417	15.68169
<SUBTOTAL>									**1.64516**	**0.11516**		**1.53448**	**0.10741**		**0.00345**	**0.00024**		**0.06729**	**0.00471**		**0.05585**	**0.00391**		**0.24356**	**0.01705**		**344.42645**	**24.10985**		**0.01531**	**0.00107**	**344.74796**	**24.13236**
Survey					(1 Crew)																												
Truck, Pick-Up	200	Gas	1	8.0	4.00	30.00	On-Road E.F.	0.00660	0.19811	0.00079	0.00065	0.01965	0.00008	0.00001	0.00032	0.00000	0.00009	0.00276	0.00001	0.00006	0.00178	0.00001	0.00070	0.02107	0.00008	1.10257	33.07716	0.13231	0.00006	0.00189	0.00001	33.11692	0.13247
Grading					(1 Crew)																												
Compactor, Tamper	15	Diesel	1	30	4.00	-	Off-Road E.F.	0.02634	0.10536	0.00158	0.03145	0.12579	0.00189	0.00007	0.00027	0.00000	0.00123	0.00490	0.00007	89% of PM10	0.00436	0.00007	0.00502	0.02009	0.00030	4.31380	17.25521	0.25883	0.00045	0.00181	0.00003	17.29327	0.25940
Motor Grader	250	Diesel	3	60	6.00	-	Off-Road E.F.	0.41774	7.51931	0.22558	1.28438	23.11889	0.69357	0.00194	0.03486	0.00105	0.04449	0.80081	0.02402	89% of PM10	0.71272	0.02138	0.14066	2.53192	0.07596	172.11317	3098.03711	92.94111	0.01269	0.22845	0.00685	3102.83457	93.08504
Truck, Flat Bed, 1 Ton	300	Diesel	1	60	1.00	30.00	On-Road E.F.	0.00660	0.19811	0.00594	0.00065	0.01965	0.00059	0.00001	0.00032	0.00001	0.00009	0.00276	0.00008	0.00006	0.00178	0.00005	0.00070	0.02107	0.00063	1.10257	33.07716	0.99231	0.00006	0.00189	0.00006	33.11692	0.99351
Truck, Pick-Up	200	Gas	1	60	2.00	30.00	On-Road E.F.	0.01284	0.38530	0.01156	0.01425	0.42755	0.01283	0.00003	0.00083	0.00002	0.00055	0.01648	0.00049	0.00046	0.01366	0.00041	0.00190	0.05689	0.00171	2.79845	83.95364	2.51861	0.00009	0.00264	0.00008	84.00907	2.52027
Off-Highway Tractor	Comp.	Diesel	1	60	6.00	-	Off-Road E.F.	0.74380	4.46282	0.13388	1.61106	9.66636	0.28999	0.00167	0.01003	0.00030	0.07671	0.46025	0.01381	89% of PM10	0.40963	0.01229	0.19857	1.19145	0.03574	151.42882	908.57290	27.25719	0.01792	0.10750	0.00323	910.83045	27.32491
Loader	Comp.	Diesel	1	60	6.00	-	Off-Road E.F.		0.00000	0.00000		0.00000	0.00000		0.00000	0.00000		0.00000	0.00000	89% of PM10	0.00000	0.00000		0.00000	0.00000		0.00000	0.00000		0.00000	0.00000	0.00000	0.00000
Truck, Dump, 10 Ton	350	Diesel	1	60	6.00	30.00	On-Road E.F.	0.01284	0.38530	0.01156	0.01425	0.42755	0.01283	0.00003	0.00083	0.00002	0.00055	0.01648	0.00049	0.00046	0.01366	0.00041	0.00190	0.05689	0.00171	2.79845	83.95364	2.51861	0.00009	0.00264	0.00008	84.00907	2.52027
Water Truck	350	Diesel	1	60	4.00	30.00	On-Road E.F.	0.01284	0.38530	0.01156	0.01425	0.42755	0.01283	0.00003	0.00083	0.00002	0.00055	0.01648	0.00049	0.00046	0.01366	0.00041	0.00190	0.05689	0.00171	2.79845	83.95364	2.51861	0.00009	0.00264	0.00008	84.00907	2.52027
Worker Vehicles	200	Gas	4	30	8.00	40.00	On-Road E.F.	0.01284	2.05491	0.03082	0.01425	2.28026	0.03420	0.00003	0.00441	0.00007	0.00055	0.08789	0.00132	0.00046	0.07283	0.00109	0.00190	0.30344	0.00455	2.79845	447.75274	6.71629	0.00009	0.01408	0.00021	448.04835	6.72073
<SUBTOTAL>									**15.49640**	**0.43249**		**36.49358**	**1.05872**		**0.05236**	**0.00150**		**1.40605**	**0.04079**		**1.24229**	**0.03611**		**4.23864**	**0.12231**		**4756.55605**	**135.72156**		**0.36165**	**0.01061**	**4764.15076**	**135.94440**
Civil					(1 Crew)																												
Backhoe w/ Bucket	175	Diesel	1	22	3.00	-	Off-Road E.F.	0.58566	1.75697	0.01933	0.71609	2.14826	0.02363	0.00114	0.00342	0.00004	0.03801	0.11402	0.00125	89% of PM10	0.10148	0.00112	0.09240	0.27721	0.00305	101.38689	304.16066	3.34577	0.00834	0.02501	0.00028	304.68591	3.35155
Drill Rig	175	Diesel	1	100	4.00	-	Off-Road E.F.	0.75389	3.01556	0.15078	0.65273	2.61092	0.13055	0.00159	0.00635	0.00032	0.02462	0.09848	0.00492	89% of PM10	0.08765	0.00438	0.06712	0.26848	0.01342	141.07642	564.30568	28.21528	0.00606	0.02422	0.00121	564.81441	28.24072
Forklift, 5 Ton	175	Diesel	1	100	2.00	-	Off-Road E.F.	0.33109	0.66218	0.03311	0.38829	0.77658	0.03883	0.00063	0.00126	0.00006	0.02139	0.04277	0.00214	89% of PM10	0.03807	0.00190	0.05242	0.10485	0.00524	56.05438	112.10875	5.60544	0.00473	0.00946	0.00047	112.30741	5.61537
Truck, Concrete, 10 Yard	425	Diesel	4	60	4.00	30.00	On-Road E.F.	0.01284	1.54119	0.04624	0.01425	1.71019	0.05131	0.00003	0.00330	0.00010	0.00055	0.06591	0.00198	0.00046	0.05462	0.00164	0.00190	0.22758	0.00683	2.79845	335.81456	10.07444	0.00009	0.01056	0.00032	336.03626	10.08109
Truck, Dump, 10 Ton	350	Diesel	1	80	1.00	30.00	On-Road E.F.	0.01284	0.38530	0.01541	0.01425	0.42755	0.01710	0.00003	0.00083	0.00003	0.00055	0.01648	0.00066	0.00046	0.01366	0.00055	0.00190	0.05689	0.00228	2.79845	83.95364	3.35815	0.00009	0.00264	0.00011	84.00907	3.36036
Truck, Flat Bed, 5 Ton	300	Diesel	1	100	1.00	30.00	On-Road E.F.	0.00660	0.19811	0.00991	0.00065	0.01965	0.00098	0.00001	0.00032	0.00002	0.00009	0.00276	0.00014	0.00006	0.00178	0.00009	0.00070	0.02107	0.00105	1.10257	33.07716	1.65386	0.00006	0.00189	0.00009	33.11692	1.65585
Truck, Flat Bed w/ Boom, 5 Ton	300	Diesel	1	100	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.00991	0.00065	0.01965	0.00098	0.00001	0.00032	0.00002	0.00009	0.00276	0.00014	0.00006	0.00178	0.00009	0.00070	0.02107	0.00105	1.10257	33.07716	1.65386	0.00006	0.00189	0.00009	33.11692	1.65585
Truck, Pick-Up	200	Gas	2	100	2.00	30.00	On-Road E.F.	0.00660	0.39621	0.01981	0.00065	0.03929	0.00196	0.00001	0.00064	0.00003	0.00009	0.00551	0.00028	0.00006	0.00356	0.00018	0.00070	0.04214	0.00211	1.10257	66.15432	3.30772	0.00006	0.00379	0.00019	66.23385	3.31169
Water Truck	350	Diesel	1	100	3.00	30.00	On-Road E.F.	0.01284	0.38530	0.01926	0.01425	0.42755	0.02138	0.00003	0.00083	0.00004	0.00055	0.01648	0.00082	0.00046	0.01366	0.00068	0.00190	0.05689	0.00284	2.79845	83.95364	4.19768	0.00009	0.00264	0.00013	84.00907	4.20045
Worker Vehicles	200	Gas	10	100	8.00	40.00	On-Road E.F.	0.01284	5.13728	0.25686	0.01425	5.70065	0.28503	0.00003	0.01102	0.00055	0.00055	0.21971	0.01099	0.00046	0.18208	0.00910	0.00190	0.75860	0.03793	2.79845	1119.38186	55.96909	0.00009	0.03519	0.00176	1120.12087	56.00604
<SUBTOTAL>									**13.67620**	**0.58061**		**13.88028**	**0.57175**		**0.02829**	**0.00121**		**0.58489**	**0.02331**		**0.49833**	**0.01973**		**1.83477**	**0.07581**		**2735.98744**	**117.38128**		**0.11730**	**0.00465**	**2738.45069**	**117.47897**
Electrical					(1 Crew)																												
Crane Truck, 30 Ton	250	Diesel	1	100	1.00	-	Off-Road E.F.	0.28169	0.28169	0.01408	0.90882	0.90882	0.04544	0.00126	0.00126	0.00006	0.03168	0.03168	0.00158	89% of PM10	0.02819	0.00141	0.09794	0.09794	0.00490	112.15885	112.15885	5.60794	0.00884	0.00884	0.00044	112.34444	5.61722
Forklift, 5 Ton	175	Diesel	1	150	2.00	-	Off-Road E.F.	0.33109	0.66218	0.04966	0.38829	0.77658	0.05824	0.00063	0.00126	0.00009	0.02139	0.04277	0.00321	89% of PM10	0.03807	0.00286	0.05242	0.10485	0.00786	56.05438	112.10875	8.40816	0.00473	0.00946	0.00071	112.30741	8.42306
Truck, Flat Bed w/ Boom, 8 Ton	300	Diesel	1	150	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.01486	0.00065	0.01965	0.00147	0.00001	0.00032	0.00002	0.00009	0.00276	0.00021	0.00006	0.00178	0.00013	0.00070	0.02107	0.00158	1.10257	33.07716	2.48079	0.00006	0.00189	0.00014	33.11692	2.48377
Truck, Flat Bed w/ Bucket, 5 Ton	350	Diesel	1	150	1.00	30.00	On-Road E.F.	0.01284	0.38530	0.02890	0.01425	0.42755	0.03207	0.00003	0.00083	0.00006	0.00055	0.01648	0.00124	0.00046	0.01366	0.00102	0.00190	0.05689	0.00427	2.79845	83.95364	6.29652	0.00009	0.00264	0.00020	84.00907	6.30068
Truck, Pick-Up	200	Gas	2	150	2.00	30.00	On-Road E.F.	0.00660	0.39621	0.02972	0.00065	0.03929	0.00295	0.00001	0.00064	0.00005	0.00009	0.00551	0.00041	0.00006	0.00356	0.00027	0.00070	0.04214	0.00316	1.10257	66.15432	4.96157	0.00006	0.00379	0.00028	66.23385	4.96754
Worker Vehicles	200	Gas	10	150	8.00	40.00	On-Road E.F.	0.01284	5.13728	0.38530	0.01425	5.70065	0.42755	0.00003	0.01102	0.00083	0.00055	0.21971	0.01648	0.00046	0.18208	0.01366	0.00190	0.75860	0.05689	2.79845	1119.38186	83.95364	0.00009	0.03519	0.00264	1120.12087	84.00907
<SUBTOTAL>									**7.06076**	**0.52252**		**7.87253**	**0.56772**		**0.01533**	**0.00112**		**0.31891**	**0.02313**		**0.26734**	**0.01935**		**1.08149**	**0.07866**		**1526.83459**	**111.70862**		**0.06181**	**0.00441**	**1528.13256**	**111.80133**
Transformer(only applies to 69kV)					1 Crew)																												
Crane, Hydraulic, 150 Ton	400	Diesel	1	8	4.00	-	Off-Road E.F.	0.45527	1.82108	0.00728	1.10663	4.42651	0.01771	0.00138	0.00551	0.00002	0.04662	0.18646	0.00075	89% of PM10	0.16595	0.00066	0.12755	0.51020	0.00204	128.63520	514.54082	2.05816	0.01151	0.04603	0.00018	515.50755	2.06203
Truck, Semi, Tractor	350	Diesel	1	15	4.00	30.00	On-Road E.F.	0.01284	0.38530	0.00289	0.01425	0.42755	0.00321	0.00003	0.00083	0.00001	0.00055	0.01648	0.00012	0.00046	0.01366	0.00010	0.00190	0.05689	0.00043	2.79845	83.95364	0.62965	0.00009	0.00264	0.00002	84.00907	0.63007
Worker Vehicles	200	Gas	3	15	8.00	40.00	On-Road E.F.	0.01284	1.54119	0.01156	0.01425	1.71019	0.01283	0.00003	0.00330	0.00002	0.00055	0.06591	0.00049	0.00046	0.05462	0.00041	0.00190	0.22758	0.00171	2.79845	335.81456	2.51861	0.00009	0.01056	0.00008	336.03626	2.52027
<SUBTOTAL>									**3.74756**	**0.02173**		**6.56425**	**0.03374**		**0.00964**	**0.00005**		**0.26885**	**0.00136**		**0.23423**	**0.00118**		**0.79467**	**0.00417**		**934.30902**	**5.20642**		**0.05923**	**0.00028**	**935.55287**	**5.21237**
Paving					(1 Crew)																												
Compactor, Tamper	15	Diesel	1	20	2.00	-	Off-Road E.F.	0.02634	0.05268	0.00053	0.03145	0.06289	0.00063	0.00007	0.00013	0.00000	0.00123	0.00245	0.00002	89% of PM10	0.00218	0.00002	0.00502	0.01004	0.00010	4.31380	8.62761	0.08628	0.00045	0.00091	0.00001	8.64664	0.08647
Loader, Wheeled	250	Diesel	1	20	2.00	-	Off-Road E.F.	0.35531	0.71062	0.00711	1.09660	2.19320	0.02193	0.00168	0.00335	0.00003	0.03750	0.07501	0.00075	89% of PM10	0.06676	0.00067	0.11860	0.23720	0.00237	148.97669	297.95337	2.97953	0.01070	0.02140	0.00021	298.40282	2.98403
Truck, Dump, 10 Ton	350	Diesel	1	20	2.00	30.00	On-Road E.F.	0.01284	0.38530	0.00385	0.01425	0.42755	0.00428	0.00003	0.00083	0.00001	0.00055	0.01648	0.00016	0.00046	0.01366	0.00014	0.00190	0.05689	0.00057	2.79845	83.95364	0.83954	0.00009	0.00264	0.00003	84.00907	0.84009
Truck, Pick-Up	200	Gas	1	20	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.00198	0.00065	0.01965	0.00020	0.00001	0.00032	0.00000	0.00009	0.00276	0.00003	0.00006	0.00178	0.00002	0.00070	0.02107	0.00021	1.10257	33.07716	0.33077	0.00006	0.00189	0.00002	33.11692	0.33117
Worker Vehicles	200	Gas	5	20	8.00	40.00	On-Road E.F.	0.01284	2.56864	0.02569	0.01425	2.85032	0.02850	0.00003	0.00551	0.00006	0.00055	0.10986	0.00110	0.00046	0.09104	0.00091	0.00190	0.37930	0.00379	2.79845	559.69093	5.59691	0.00009	0.01760	0.00018	560.06044	5.60060
<SUBTOTAL>									**3.91534**	**0.03915**		**5.55361**	**0.05554**		**0.01014**	**0.00010**		**0.20655**	**0.00207**		**0.17541**	**0.00175**		**0.70450**	**0.00705**		**983.30271**	**9.83303**		**0.04444**	**0.00044**	**984.23588**	**9.84236**
Fencing					(1 Crew)																												
Forklift, 5 Ton	175	Diesel	1	35	2.00	-	Off-Road E.F.	0.33109	0.66218	0.01159	0.38829	0.77658	0.01359	0.00063	0.00126	0.00002	0.02139	0.04277	0.00075	89% of PM10	0.03807	0.00067	0.05242	0.10485	0.00183	56.05438	112.10875	1.96190	0.00473	0.00946	0.00017	112.30741	1.96538
Loader, Wheeled	250	Diesel	1	35	1.00	-	Off-Road E.F.	0.35531	0.35531	0.00622	1.09660	1.09660	0.01919	0.00168	0.00168	0.00003	0.03750	0.03750	0.00066	89% of PM10	0.03338	0.00058	0.11860	0.11860	0.00208	148.97669	148.97669	2.60709	0.01070	0.01070	0.00019	149.20141	2.61102
Truck, Flat Bed, 5 Ton	300	Diesel	1	35	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.00347	0.00065	0.01965	0.00034	0.00001	0.00032	0.00001	0.00009	0.00276	0.00005	0.00006	0.00178	0.00003	0.00070	0.02107	0.00037	1.10257	33.07716	0.57885	0.00006	0.00189	0.00003	33.11692	0.57955
Truck, Pick-Up	200	Gas	1	35	2.00	30.00	On-Road E.F.	0.00660	0.19811	0.00347	0.00065	0.01965	0.00034	0.00001	0.00032	0.00001	0.00009	0.00276	0.00005	0.00006	0.00178	0.00003	0.00070	0.02107	0.00037	1.10257	33.07716	0.57885	0.00006	0.00189	0.00003	33.11692	0.57955
Worker Vehicles	200	Gas	4	30	8.00	40.00	On-Road E.F.	0.01284	2.05491	0.03082	0.01425	2.28026	0.03420	0.00003	0.00441	0.00007	0.00055	0.08789	0.00132	0.00046	0.07283	0.00109	0.00190	0.30344	0.00455	2.79845	447.75274	6.71629	0.00009	0.01408	0.00021	448.04835	6.72073
<SUBTOTAL>									**2.25302**	**0.03429**		**2.29990**	**0.03455**		**0.00473**	**0.00007**		**0.09064**	**0.00137**		**0.07461**	**0.00112**		**0.32451**	**0.00492**		**480.82991**	**7.29514**		**0.01597**	**0.00024**	**481.16527**	**7.30027**
Testing					(1 Crew)																												
Truck, Pick-Up	200	Gas	2	80	3.00	30.00	On-Road E.F.	0.00660	0.39621	0.01585	0.00065	0.03929	0.00157	0.00001	0.00064	0.00003	0.00009	0.00551	0.00022	0.00006	0.00356	0.00014	0.00070	0.04214	0.00169	1.10257	66.15432	2.64617	0.00006	0.00379	0.00015	66.23385	2.64935
Worker Vehicles	200	Gas	4	80	8.00	40.00	On-Road E.F.	0.01284	2.05491	0.08220	0.01425	2.28026	0.09121	0.00003	0.00441	0.00018	0.00055	0.08789	0.00352	0.00046	0.07283	0.00291	0.00190	0.30344	0.01214	2.79845	447.75274	17.91011	0.00009	0.01408	0.00056	448.04835	17.92193
<SUBTOTAL>									**2.45113**	**0.09805**		**2.31955**	**0.09278**		**0.00505**	**0.00020**		**0.09340**	**0.00374**		**0.07639**	**0.00306**		**0.34558**	**0.01382**		**513.90707**	**20.55628**		**0.01786**	**0.00071**	**514.28220**	**20.57129**
Operational Maintenance [8]					(1 Crew)																												
Truck, Flatbed, w/ Boom, 5 Ton	300	Diesel	1	40	4.00	40.00	On-Road E.F.	0.01284	0.51373	0.01027	0.01425	0.57006	0.01140	0.00003	0.00110	0.00002	0.00055	0.02197	0.00044	0.00046	0.01821	0.00036	0.00190	0.07586	0.00152	2.79845	111.93819	2.23876	0.00009	0.00352	0.00007	112.01209	2.24024
<TOTAL> [9]									**50.44**	**1.84**		**76.54**	**2.52**		**0.13**	**0.00**		**3.04**	**0.10**		**2.63**	**0.09**		**9.59**	**0.32**		**12,309.23**	**431.94**		**0.70**	**0.02**	**12,323.84**	**432.42**
Single Highest lbs/day Emissions for all Construction Phases [10]									**15.50**			**36.49**			**0.05**			**1.41**			**1.24**			**4.24**			**4,756.56**			**0.36**		**4,764.15**	

Notes:
[1] Data from Power Engineers, Inc. (230kV Chapter 3_Const Descrip_KJK tables.doc)
[2] Distance traveled is assumed to be: 30 miles for delivery trucks, 40 miles commuters, and 40 miles for segments that consists of both urban and rural areas.
[3] Emission factors for onroad and offroad vehicles are obtained from SCAQMD websites, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html and http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html, respectively, for year 2010.
[4] Auxillary Power Motor and Air Compressor emissions were obtained from AP-42 Section 3.3, Table 3.3.1
[5] For offroad equipment, PM emission factor was used to calculate PM10 emissions.
[6] The SCAQMD derived default ratio for estimating PM2.5 is that for offroad combustion sources 89 percent of PM_{10} is $PM_{2.5}$.
[7] Global Warming Potential (GWP) assumes a GWP of 1 for CO2 and 21 for CH4, which were obtained from Table 3-1 Greenhouse Gas and Global Warming Potentials: Compendium of Green House Gas Emissions Methodologies for the Oil and Gas Industry dated February 2004 (API 2004).
[8] Operational Maintenance emissions were estimated assuming that one line truck would drive to the substation every two weeks as part of on-going operational maintenance activities.
[9] Total Emissions were estimated to be the sum of all of the emission source phases not including Operational Maintenance.
[10] Single Highest lb/day Emissions for all Construction Phases Emissions were calculated as the highest maximum emissions any of the construction phases. The construction phases with the highest daily emissions was determined to be Grading.

RTRP
Table A-6
Fugitive Dust Emissions from Earthmoving Activities
(69 kV)

RTRP
Fugitive Dust Due to Earthmoving Activities

Project Feature	Site Quantity	Disturbed Acreage Calculation (L x W)	Total Acres Disturbed During Construction	Maximum Acres Disturbed During Construction (acres/day)	Acres Disturbed During Construction (acres/month)	PM_{10} Emission Factor (ton/acre-month) [2]	Duration of Project (days)	Duration of Project (months) [3]	Total PM_{10} emissions (tons)	PM_{10} emissions, SCAQMD (lb/day)	PM_{10} emissions, SCAQMD (ton/yr)	PM2.5 emissions, SCAQMD (lb/day)	PM2.5 emissions, SCAQMD (ton/yr)
RERC - Harvey Lynn - Freeman - 69kV Route [5]													
Construct Poles	323	50' x 50'	18.5	0.09	1.72	0.11	250	12.5	2.37	18.94	2.4	4.0	0.5
<SUBTOTAL>													
<MAXIMUM> (lb/day)													
Marshalling Yard - Grading [4]	1	2 to 20 Acres	5	0.25	5	0.11	20	1	0.55	55	0.55	11.55	0.1155
Wilderness - Mountain View - 69kV Route													
Construct Poles	4	50' x 50'	0.2	0.01	0.2	0.11	75	3.8	0.09	2.53	0.1	0.5	0.0
<SUBTOTAL> (5)													
<MAXIMUM> (lb/day)													
Wilderness Substation													
Grading	1	900' x 750'	15.5	0.12	2.5	0.11	125	6.3	1.70	27.27	1.7	5.7	0.4
<SUBTOTAL> (5)													
<MAXIMUM> (lb/day)													

[1] Data from Power Engineers, Inc. (Land Disturbance Table for Western and Van Buren TSP & LST.doc)

[2] The CARB document cites that the emission factor is for site preparation work, which may include scraping, grading, loading, digging, compacting, light-duty vehicle travel, and other operations. http://www.arb.ca.gov/ei/areasrc/ONEHTM/ONE7-7.HTM

[3] It has been estimated that a month contains 20 work days.

[4] To be conservative, it was assumed that the marshalling yard would be a 20 acre work area, with 25 percent of the site to require grading and application of road base for offices and worker vehicle parking. It was also assumed that the earthmoving activities for the marshalling yard would require 1 month.

[5] The average area of soil disturbance was conservatively estimated to require a 50' x 50' square foot area for new pole installs for the augering of the transmission line pole hole and staging of vehicles and equipment. It was assumed that a crew would construct one and a half pole per day. Assuming 20 working days per month, the total disturbed area was estimated as follows: (50' x 50') * 43,560 acre/ft2 * 30 pole installation per month = 1.72 acres

RTRP
Table A-6
Fugitive Dust Emissions from Earthmoving Activities (230 kV)

RTRP
Fugitive Dust Due to Earthmoving Activities

Project Feature	Disturbed Acreage Calculation (L x W)	Total Acres Disturbed During Construction	Total Acres to be Restored	Total Acres Permanently Disturbed	Maximum Acres Disturbed During Construction (acres/day)	PM_{10} Emission Factor (ton/acre-month) [2]	PM_{10} emissions, SCAQMD (lb/day)	PM2.5 emissions, SCAQMD (lb/day)
I-15 230kV Route [1]								
Guard Structures	50' x 75'	1.0	1.0	0.0	0.09	0.11	0.95	0.20
Construct Lattice Steel Towers	200' x 200'	22.0	17.2	4.8	0.92	0.11	10.10	2.12
Construct New Tubular Steel Poles	200' x 100'	26.2	22.8	3.4	0.46	0.11	5.05	1.06
Modify Existing Lattice Steel Tower	200' x 200'	0.7	0.7	0.0	0.92	0.11	10.10	2.12
230kV Conductor & OPGW Stringing Setup Area - Puller	300' x 100'	12.4	12.4	0.0	0.69	0.11	7.58	1.59
230kV Conductor & OPGW Stringing Setup Area - Tensioner	400' x 100'	16.5	16.5	0.0	0.92	0.11	10.10	2.12
230kV Conductor Field Snub Area	50' x 50'	0.1	0.1	0.0	0.06	0.11	0.63	0.13
New Roads (Downline, Access, & Spur)	linear miles x 18' wide	14.2	0.0	14.2	1.09	0.11	11.99	2.52
<SUBTOTAL>		**93.1**	**70.7**	**22.4**				
<MAXIMUM> (lb/day)							**11.99**	**2.52**

TOTAL

[1] Data from Power Engineers, Inc. (Land Disturbance Table for Western and Van Buren TSP & LST.doc)

[2] The CARB document cites that the emission factor is for site preparation work, which may include scraping, grading, loading, digging, compacting, light-duty vehicle travel, and other operations. http://www.arb.ca.gov/ei/areasrc/ONEHTM/ONE7-7.HTM

[3] It has been estimated that a month contains 20 work days.

SCAB Fleet Average Emission Factors (Diesel)
2010
Air Basin SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Aerial Lifts	15	0.0104	0.0529	0.0662	0.0001	0.0037	8.7	0.0009
	25	0.0210	0.0577	0.1013	0.0001	0.0065	11.0	0.0019
	50	0.0756	0.1937	0.1984	0.0003	0.0189	19.6	0.0068
	120	0.0702	0.2501	0.4502	0.0004	0.0361	38.1	0.0063
	500	0.1506	0.5801	1.9198	0.0021	0.0598	213	0.0136
	750	0.2803	1.0486	3.5605	0.0039	0.1096	385	0.0253
Aerial Lifts Composite		0.0670	0.2093	0.3600	0.0004	0.0248	34.7	0.0060
Air Compressors	15	0.0144	0.0513	0.0838	0.0001	0.0061	7.2	0.0013
	25	0.0325	0.0847	0.1397	0.0002	0.0098	14.4	0.0029
	50	0.1163	0.2813	0.2386	0.0003	0.0265	22.3	0.0105
	120	0.1014	0.3351	0.5977	0.0006	0.0545	47.0	0.0091
	175	0.1274	0.5113	1.0082	0.0010	0.0568	88.5	0.0115
	250	0.1225	0.3413	1.3983	0.0015	0.0462	131	0.0111
	500	0.1943	0.6778	2.2062	0.0023	0.0752	232	0.0175
	750	0.3054	1.0476	3.5002	0.0036	0.1179	358	0.0276
	1000	0.5203	1.8591	6.0195	0.0049	0.1809	486	0.0469
Air Compressors Composite		0.1120	0.3613	0.7320	0.0007	0.0526	63.6	0.0101
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0031	10.3	0.0011
	25	0.0196	0.0660	0.1257	0.0002	0.0065	16.0	0.0018
	50	0.0545	0.2505	0.2820	0.0004	0.0194	31.0	0.0049
	120	0.0722	0.4812	0.6155	0.0009	0.0456	77.1	0.0065
	175	0.0930	0.7543	0.9148	0.0016	0.0481	141	0.0084
	250	0.0957	0.3460	1.1847	0.0021	0.0384	188	0.0086
	500	0.1488	0.5566	1.7054	0.0031	0.0614	311	0.0134
	750	0.2996	1.0997	3.4821	0.0062	0.1231	615	0.0270
	1000	0.5360	1.7074	8.3092	0.0093	0.2078	928	0.0484
Bore/Drill Rigs Composite		0.1052	0.5146	1.1331	0.0017	0.0498	165	0.0095
Cement and Mortar Mixers	15	0.0079	0.0388	0.0505	0.0001	0.0029	6.3	0.0007
	25	0.0346	0.0942	0.1633	0.0002	0.0107	17.6	0.0031
Cement and Mortar Mixers Composite		0.0101	0.0434	0.0599	0.0001	0.0035	7.2	0.0009
Concrete/Industrial Saws	25	0.0200	0.0678	0.1279	0.0002	0.0063	16.5	0.0018
	50	0.1231	0.3210	0.3070	0.0004	0.0301	30.2	0.0111
	120	0.1342	0.4976	0.8601	0.0009	0.0719	74.1	0.0121
	175	0.1927	0.8786	1.6459	0.0018	0.0864	160	0.0174
Concrete/Industrial Saws Composite		0.1270	0.4273	0.6566	0.0007	0.0552	58.5	0.0115
Cranes	50	0.1284	0.3166	0.2547	0.0003	0.0289	23.2	0.0116
	120	0.1117	0.3723	0.6542	0.0006	0.0602	50.1	0.0101
	175	0.1211	0.4880	0.9302	0.0009	0.0538	80.3	0.0109
	250	0.1243	0.3464	1.2372	0.0013	0.0470	112	0.0112
	500	0.1821	0.6625	1.7722	0.0018	0.0685	180	0.0164
	750	0.3082	1.1113	3.0564	0.0030	0.1166	303	0.0278
	9999	1.0894	4.1317	12.1879	0.0098	0.3792	971	0.0983
Cranes Composite		0.1594	0.5431	1.4515	0.0014	0.0642	129	0.0144
Crawler Tractors	50	0.1446	0.3520	0.2780	0.0003	0.0320	24.9	0.0131
	120	0.1551	0.5018	0.9038	0.0008	0.0819	65.8	0.0140
	175	0.1941	0.7597	1.4788	0.0014	0.0856	121	0.0175
	250	0.2051	0.5743	1.9440	0.0019	0.0784	166	0.0185
	500	0.2913	1.1931	2.7255	0.0025	0.1101	259	0.0263
	750	0.5240	2.1290	4.9881	0.0047	0.1989	465	0.0473
	1000	0.7980	3.3726	8.5998	0.0066	0.2810	658	0.0720
Crawler Tractors Composite		0.1861	0.6409	1.3854	0.0013	0.0854	114	0.0168
Crushing/Proc. Equipment	50	0.2271	0.5592	0.4700	0.0006	0.0520	44.0	0.0205
	120	0.1760	0.5956	1.0382	0.0010	0.0960	83.1	0.0159
	175	0.2367	0.9736	1.8607	0.0019	0.1068	167	0.0214
	250	0.2243	0.6225	2.5465	0.0028	0.0841	245	0.0202
	500	0.3091	1.0542	3.4510	0.0037	0.1187	374	0.0279
	750	0.4956	1.6226	5.6506	0.0059	0.1900	589	0.0447
	9999	1.3820	4.8014	16.0752	0.0131	0.4812	1,308	0.1247
Crushing/Proc. Equipment Composite		0.2152	0.7260	1.4394	0.0015	0.0935	132	0.0194
Dumpers/Tenders	25	0.0108	0.0336	0.0645	0.0001	0.0036	7.6	0.0010
Dumpers/Tenders Composite		0.0108	0.0336	0.0645	0.0001	0.0036	7.6	0.0010
Excavators	25	0.0199	0.0677	0.1261	0.0002	0.0057	16.4	0.0018
	50	0.1131	0.3145	0.2638	0.0003	0.0276	25.0	0.0102
	120	0.1398	0.5318	0.8402	0.0009	0.0781	73.6	0.0126
	175	0.1465	0.6701	1.1143	0.0013	0.0663	112	0.0132
	250	0.1451	0.3934	1.4935	0.0018	0.0519	159	0.0131
	500	0.1984	0.6161	1.9285	0.0023	0.0711	234	0.0179
	750	0.3313	1.0196	3.3023	0.0039	0.1198	387	0.0299
Excavators Composite		0.1483	0.5581	1.1502	0.0013	0.0638	120	0.0134
Forklifts	50	0.0666	0.1824	0.1530	0.0002	0.0163	14.7	0.0060
	120	0.0601	0.2243	0.3497	0.0004	0.0342	31.2	0.0054
	175	0.0738	0.3306	0.5540	0.0006	0.0337	56.1	0.0067
	250	0.0652	0.1707	0.7163	0.0009	0.0227	77.1	0.0059
	500	0.0868	0.2343	0.8909	0.0011	0.0307	111	0.0078
Forklifts Composite		0.0686	0.2319	0.5161	0.0006	0.0281	54.4	0.0062
Generator Sets	15	0.0172	0.0726	0.1154	0.0002	0.0069	10.2	0.0016
	25	0.0300	0.1033	0.1705	0.0002	0.0107	17.6	0.0027
	50	0.1117	0.2904	0.3070	0.0004	0.0284	30.6	0.0101
	120	0.1395	0.5054	0.9075	0.0009	0.0714	77.9	0.0126
	175	0.1672	0.7471	1.4780	0.0016	0.0721	142	0.0151
	250	0.1618	0.5018	2.0720	0.0024	0.0618	213	0.0146
	500	0.2305	0.8858	2.9974	0.0033	0.0917	337	0.0208
	750	0.3838	1.4300	4.9646	0.0055	0.1502	544	0.0346
	9999	1.0080	3.6008	12.1384	0.0105	0.3600	1,049	0.0909
Generator Sets Composite		0.0961	0.3293	0.6440	0.0007	0.0396	61.0	0.0087
Graders	50	0.1400	0.3584	0.2961	0.0004	0.0323	27.5	0.0126
	120	0.1553	0.5459	0.9268	0.0009	0.0849	75.0	0.0140
	175	0.1743	0.7409	1.3532	0.0014	0.0783	124	0.0157
	250	0.1761	0.4934	1.7904	0.0019	0.0662	172	0.0159
	500	0.2149	0.7523	2.1198	0.0023	0.0807	229	0.0194
	750	0.4580	1.5877	4.6098	0.0049	0.1729	486	0.0413
Graders Composite		0.1723	0.6314	1.4338	0.0015	0.0753	133	0.0155
Off-Highway Tractors	120	0.2457	0.7439	1.4200	0.0011	0.1255	93.7	0.0222
	175	0.2326	0.8561	1.7665	0.0015	0.1014	130	0.0210

SCAB Fleet Average Emission Factors (Diesel)
2010
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	250	0.1881	0.5347	1.7050	0.0015	0.0735	130	0.0170
	750	0.7400	3.5496	6.8440	0.0057	0.2854	568	0.0668
	1000	1.1197	5.5155	11.4633	0.0082	0.4009	814	0.1010
Off-Highway Tractors Composite		0.2368	0.8385	1.9897	0.0017	0.0974	151	0.0214
Off-Highway Trucks	175	0.1732	0.7625	1.2796	0.0014	0.0771	125	0.0156
	250	0.1639	0.4301	1.6150	0.0019	0.0574	167	0.0148
	500	0.2492	0.7542	2.3188	0.0027	0.0872	272	0.0225
	750	0.4069	1.2210	3.8814	0.0044	0.1436	442	0.0367
	1000	0.6440	2.0615	7.3260	0.0063	0.2219	625	0.0581
Off-Highway Trucks Composite		0.2480	0.7429	2.3885	0.0027	0.0875	260	0.0224
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0030	10.1	0.0011
	25	0.0162	0.0545	0.1039	0.0002	0.0053	13.2	0.0015
	50	0.1033	0.2930	0.2787	0.0004	0.0263	28.0	0.0093
	120	0.1320	0.5419	0.8649	0.0009	0.0740	80.9	0.0119
	175	0.1168	0.5901	0.9927	0.0012	0.0543	107	0.0105
	500	0.1705	0.6068	1.9821	0.0025	0.0678	254	0.0154
Other Construction Equipment Composite		0.1056	0.4108	1.0117	0.0013	0.0442	123	0.0095
Other General Industrial Equipmen	15	0.0066	0.0391	0.0466	0.0001	0.0017	6.4	0.0006
	25	0.0186	0.0632	0.1177	0.0002	0.0054	15.3	0.0017
	50	0.1281	0.3073	0.2413	0.0003	0.0285	21.7	0.0116
	120	0.1459	0.4647	0.8218	0.0007	0.0795	62.0	0.0132
	175	0.1516	0.5816	1.1364	0.0011	0.0676	95.9	0.0137
	250	0.1400	0.3676	1.5016	0.0015	0.0509	136	0.0126
	500	0.2500	0.8031	2.6018	0.0026	0.0919	265	0.0226
	750	0.4153	1.3236	4.4083	0.0044	0.1538	437	0.0375
	1000	0.6374	2.2063	7.1530	0.0056	0.2212	560	0.0575
Other General Industrial Equipmen Composite		0.1847	0.5948	1.6649	0.0016	0.0740	152	0.0167
Other Material Handling Equipment	50	0.1773	0.4246	0.3355	0.0004	0.0395	30.3	0.0160
	120	0.1417	0.4524	0.8014	0.0007	0.0772	60.7	0.0128
	175	0.1914	0.7367	1.4429	0.0014	0.0856	122	0.0173
	250	0.1481	0.3917	1.6024	0.0016	0.0542	145	0.0134
	500	0.1782	0.5784	1.8750	0.0019	0.0660	192	0.0161
	9999	0.8390	2.9174	9.4509	0.0073	0.2912	741	0.0757
Other Material Handling Equipment Composite		0.1773	0.5556	1.6150	0.0015	0.0715	141	0.0160
Pavers	25	0.0278	0.0845	0.1603	0.0002	0.0092	18.7	0.0025
	50	0.1624	0.3860	0.3110	0.0004	0.0356	28.0	0.0147
	120	0.1638	0.5223	0.9693	0.0008	0.0853	69.2	0.0148
	175	0.2049	0.7959	1.6028	0.0014	0.0903	128	0.0185
	250	0.2426	0.7011	2.3337	0.0022	0.0953	194	0.0219
	500	0.2622	1.1661	2.5319	0.0023	0.1023	233	0.0237
Pavers Composite		0.1774	0.5644	0.9868	0.0009	0.0709	77.9	0.0160
Paving Equipment	25	0.0155	0.0521	0.0993	0.0002	0.0051	12.6	0.0014
	50	0.1384	0.3277	0.2654	0.0003	0.0303	23.9	0.0125
	120	0.1282	0.4084	0.7600	0.0006	0.0668	54.5	0.0116
	175	0.1599	0.6208	1.2577	0.0011	0.0704	101	0.0144
	250	0.1506	0.4363	1.4619	0.0014	0.0592	122	0.0136
Paving Equipment Composite		0.1336	0.4478	0.8963	0.0008	0.0629	68.9	0.0121
Plate Compactors	15	0.0050	0.0263	0.0317	0.0001	0.0015	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0317	0.0001	0.0015	4.3	0.0005
Pressure Washers	15	0.0083	0.0348	0.0553	0.0001	0.0033	4.9	0.0007
	25	0.0122	0.0419	0.0691	0.0001	0.0043	7.1	0.0011
	50	0.0413	0.1143	0.1388	0.0002	0.0115	14.3	0.0037
	120	0.0388	0.1487	0.2674	0.0003	0.0193	24.1	0.0035
Pressure Washers Composite		0.0199	0.0666	0.0989	0.0001	0.0070	9.4	0.0018
Pumps	15	0.0148	0.0528	0.0862	0.0001	0.0062	7.4	0.0013
	25	0.0439	0.1142	0.1884	0.0002	0.0133	19.5	0.0040
	50	0.1339	0.3428	0.3479	0.0004	0.0333	34.3	0.0121
	120	0.1441	0.5136	0.9216	0.0009	0.0744	77.9	0.0130
	175	0.1709	0.7489	1.4815	0.0016	0.0742	140	0.0154
	250	0.1593	0.4846	1.9941	0.0023	0.0609	201	0.0144
	500	0.2450	0.9411	3.1080	0.0034	0.0973	345	0.0221
	750	0.4167	1.5559	5.2721	0.0057	0.1631	571	0.0376
	9999	1.3269	4.8008	15.8590	0.0136	0.4723	1,355	0.1197
Pumps Composite		0.0936	0.3096	0.5545	0.0006	0.0393	49.6	0.0084
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0019	6.3	0.0007
	25	0.0164	0.0551	0.1049	0.0002	0.0054	13.3	0.0015
	50	0.1270	0.3169	0.2753	0.0003	0.0292	26.0	0.0115
	120	0.1201	0.4177	0.7383	0.0007	0.0641	59.0	0.0108
	175	0.1478	0.6270	1.2022	0.0012	0.0659	108	0.0133
	250	0.1542	0.4540	1.6232	0.0017	0.0603	153	0.0139
	500	0.1987	0.7785	2.0882	0.0022	0.0783	219	0.0179
Rollers Composite		0.1176	0.4212	0.7749	0.0008	0.0547	67.1	0.0106
Rough Terrain Forklifts	50	0.1590	0.4186	0.3558	0.0004	0.0377	33.9	0.0143
	120	0.1213	0.4447	0.7326	0.0007	0.0676	62.4	0.0109
	175	0.1640	0.7302	1.2875	0.0014	0.0749	125	0.0148
	250	0.1523	0.4270	1.6632	0.0019	0.0567	171	0.0137
	500	0.2097	0.6871	2.1987	0.0025	0.0788	257	0.0189
Rough Terrain Forklifts Composite		0.1272	0.4766	0.7988	0.0008	0.0678	70.3	0.0115
Rubber Tired Dozers	175	0.2398	0.8686	1.7881	0.0015	0.1036	129	0.0216
	250	0.2776	0.7758	2.4482	0.0021	0.1071	183	0.0250
	500	0.3621	1.7411	3.2071	0.0026	0.1370	265	0.0327
	750	0.5457	2.6075	4.9024	0.0040	0.2071	399	0.0492
	1000	0.8464	4.1786	8.4813	0.0060	0.3018	592	0.0764
Rubber Tired Dozers Composite		0.3379	1.4127	2.9891	0.0025	0.1288	239	0.0305
Rubber Tired Loaders	25	0.0206	0.0697	0.1314	0.0002	0.0064	16.9	0.0019
	50	0.1560	0.4005	0.3333	0.0004	0.0361	31.1	0.0141
	120	0.1206	0.4268	0.7227	0.0007	0.0660	58.9	0.0109
	175	0.1476	0.6326	1.1513	0.0012	0.0664	106	0.0133
	250	0.1493	0.4210	1.5357	0.0017	0.0563	149	0.0135
	500	0.2172	0.7648	2.1684	0.0023	0.0819	237	0.0196
	750	0.4484	1.5625	4.5660	0.0049	0.1700	486	0.0405
	1000	0.6154	2.2308	7.1368	0.0060	0.2156	594	0.0555
Rubber Tired Loaders Composite		0.1440	0.5078	1.1537	0.0012	0.0651	109	0.0130
Scrapers	120	0.2236	0.7169	1.3034	0.0011	0.1177	93.9	0.0202

SCAB Fleet Average Emission Factors (Diesel)
2010
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	175	0.2391	0.9290	1.8284	0.0017	0.1053	148	0.0216
	250	0.2618	0.7368	2.4818	0.0024	0.1006	209	0.0236
	500	0.3650	1.5182	3.4250	0.0032	0.1386	321	0.0329
	750	0.6328	2.6115	6.0373	0.0056	0.2413	555	0.0571
Scrapers Composite		0.3202	1.2424	2.9078	0.0027	0.1256	262	0.0289
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	6.2	0.0006
	50	0.1492	0.3827	0.3689	0.0005	0.0364	36.2	0.0135
	120	0.1495	0.5380	0.9446	0.0009	0.0792	80.2	0.0135
	175	0.1907	0.8437	1.6203	0.0017	0.0846	155	0.0172
	250	0.2049	0.6138	2.5094	0.0029	0.0789	255	0.0185
Signal Boards Composite		0.0224	0.0953	0.1615	0.0002	0.0091	16.7	0.0020
Skid Steer Loaders	25	0.0249	0.0700	0.1252	0.0002	0.0079	13.8	0.0022
	50	0.0785	0.2507	0.2463	0.0003	0.0217	25.5	0.0071
	120	0.0607	0.2822	0.4131	0.0005	0.0355	42.8	0.0055
Skid Steer Loaders Composite		0.0692	0.2489	0.2919	0.0004	0.0252	30.3	0.0062
Surfacing Equipment	50	0.0589	0.1520	0.1451	0.0002	0.0142	14.1	0.0053
	120	0.1192	0.4334	0.7683	0.0007	0.0624	63.8	0.0108
	175	0.1071	0.4787	0.9169	0.0010	0.0472	85.8	0.0097
	250	0.1254	0.3883	1.3783	0.0015	0.0494	135	0.0113
	500	0.1854	0.7785	2.0517	0.0022	0.0741	221	0.0167
	750	0.2960	1.2171	3.2929	0.0035	0.1173	347	0.0267
Surfacing Equipment Composite		0.1550	0.6164	1.5685	0.0017	0.0606	166	0.0140
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0033	11.9	0.0011
	25	0.0239	0.0808	0.1524	0.0002	0.0075	19.6	0.0022
	50	0.1508	0.3893	0.3297	0.0004	0.0355	31.6	0.0136
	120	0.1490	0.5329	0.8645	0.0009	0.0843	75.0	0.0134
	175	0.1856	0.8049	1.4276	0.0016	0.0854	139	0.0167
	250	0.1344	0.3643	1.5598	0.0018	0.0489	162	0.0121
Sweepers/Scrubbers Composite		0.1548	0.5380	0.8473	0.0009	0.0686	78.5	0.0140
Tractors/Loaders/Backhoes	25	0.0214	0.0681	0.1317	0.0002	0.0072	15.9	0.0019
	50	0.1257	0.3548	0.3114	0.0004	0.0312	30.3	0.0113
	120	0.0910	0.3623	0.5664	0.0006	0.0515	51.7	0.0082
	175	0.1216	0.5881	0.9646	0.0011	0.0562	101	0.0110
	250	0.1418	0.4037	1.5493	0.0019	0.0523	172	0.0128
	500	0.2630	0.8495	2.7242	0.0039	0.0980	345	0.0237
	750	0.3986	1.2725	4.2276	0.0058	0.1496	517	0.0360
Tractors/Loaders/Backhoes Composite		0.1021	0.3930	0.6747	0.0008	0.0521	66.8	0.0092
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0023	8.5	0.0009
	25	0.0400	0.1355	0.2555	0.0004	0.0125	32.9	0.0036
	50	0.1837	0.4365	0.3620	0.0004	0.0405	32.9	0.0166
	120	0.1509	0.4840	0.9082	0.0008	0.0776	64.9	0.0136
	175	0.2254	0.8843	1.7973	0.0016	0.0990	144	0.0203
	250	0.2770	0.8161	2.6802	0.0025	0.1103	223	0.0250
	500	0.3468	1.6352	3.4013	0.0031	0.1373	311	0.0313
	750	0.6586	3.0677	6.5218	0.0059	0.2602	587	0.0594
Trenchers Composite		0.1675	0.4907	0.7598	0.0007	0.0637	58.7	0.0151
Welders	15	0.0124	0.0441	0.0720	0.0001	0.0052	6.2	0.0011
	25	0.0254	0.0661	0.1091	0.0001	0.0077	11.3	0.0023
	50	0.1231	0.3025	0.2724	0.0003	0.0287	26.0	0.0111
	120	0.0807	0.2738	0.4899	0.0005	0.0428	39.5	0.0073
	175	0.1333	0.5515	1.0896	0.0011	0.0590	98.2	0.0120
	250	0.1052	0.3022	1.2367	0.0013	0.0400	119	0.0095
	500	0.1327	0.4823	1.5648	0.0016	0.0520	168	0.0120
Welders Composite		0.0805	0.2246	0.2920	0.0003	0.0270	25.6	0.0073

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories: **Passenger Vehicles & Delivery Trucks.**

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2009**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**
CO2	**1.09755398**
CH4	**0.00008767**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**
CO2	**2.72330496**
CH4	**0.00013655**

Scenario Year: **2010**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**
CO2	**1.09568235**
CH4	**0.00008146**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**
CO2	**2.73222199**
CH4	**0.00012576**

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories: **Passenger Vehicles & Delivery Trucks.**

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2009**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**
CO2	**1.09755398**
CH4	**0.00008767**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**
CO2	**2.72330496**
CH4	**0.00013655**

Scenario Year: **2012**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.00765475**
NOx	**0.00077583**
ROG	**0.00079628**
SOx	**0.00001073**
PM10	**0.00008979**
PM2.5	**0.00005750**
CO2	**1.10152540**
CH4	**0.00007169**

Delivery Trucks (pounds/mile)	
CO	**0.01545741**
NOx	**0.01732423**
ROG	**0.00223776**
SOx	**0.00002667**
PM10	**0.00064975**
PM2.5	**0.00054954**
CO2	**2.76628414**
CH4	**0.00010668**

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2009**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**
CO2	**1.09755398**
CH4	**0.00008767**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**
CO2	**2.72330496**
CH4	**0.00013655**

Scenario Year: **2013**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.00709228**
NOx	**0.00071158**
ROG	**0.00074567**
SOx	**0.00001072**
PM10	**0.00009067**
PM2.5	**0.00005834**
CO2	**1.10087435**
CH4	**0.00006707**

Delivery Trucks (pounds/mile)	
CO	**0.01407778**
NOx	**0.01577311**
ROG	**0.00206295**
SOx	**0.00002682**
PM10	**0.00059956**
PM2.5	**0.00050174**
CO2	**2.78163459**
CH4	**0.00009703**

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2009**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**
CO2	**1.09755398**
CH4	**0.00008767**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**
CO2	**2.72330496**
CH4	**0.00013655**

Scenario Year: **2014**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.00660353**
NOx	**0.00065484**
ROG	**0.00070227**
SOx	**0.00001069**
PM10	**0.00009185**
PM2.5	**0.00005939**
CO2	**1.10257205**
CH4	**0.00006312**

Delivery Trucks (pounds/mile)	
CO	**0.01284321**
NOx	**0.01425162**
ROG	**0.00189649**
SOx	**0.00002754**
PM10	**0.00054929**
PM2.5	**0.00045519**
CO2	**2.79845465**
CH4	**0.00008798**

SCAB Fleet Average Emission Factors (Diesel)
2012
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Aerial Lifts	15	0.0102	0.0528	0.0642	0.0001	0.0030	8.7	0.0009
	25	0.0175	0.0517	0.0957	0.0001	0.0055	11.0	0.0016
	50	0.0650	0.1822	0.1916	0.0003	0.0169	19.6	0.0059
	120	0.0607	0.2451	0.4012	0.0004	0.0324	38.1	0.0055
	500	0.1276	0.4941	1.6553	0.0021	0.0491	213	0.0115
	750	0.2379	0.8930	3.0795	0.0039	0.0903	385	0.0215
Aerial Lifts Composite		0.0576	0.1976	0.3249	0.0004	0.0219	34.7	0.0052
Air Compressors	15	0.0129	0.0494	0.0768	0.0001	0.0052	7.2	0.0012
	25	0.0286	0.0779	0.1337	0.0002	0.0087	14.4	0.0026
	50	0.1010	0.2646	0.2310	0.0003	0.0239	22.3	0.0091
	120	0.0891	0.3287	0.5333	0.0006	0.0492	47.0	0.0080
	175	0.1135	0.5074	0.8954	0.0010	0.0512	88.5	0.0102
	250	0.1066	0.3052	1.2194	0.0015	0.0379	131	0.0096
	500	0.1709	0.5726	1.9077	0.0023	0.0623	232	0.0154
	750	0.2681	0.8849	3.0371	0.0036	0.0980	358	0.0242
	1000	0.4533	1.5617	5.4098	0.0049	0.1589	486	0.0409
Air Compressors Composite		0.0984	0.3445	0.6494	0.0007	0.0469	63.6	0.0089
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0194	0.0658	0.1233	0.0002	0.0054	16.0	0.0017
	50	0.0351	0.2335	0.2768	0.0004	0.0149	31.0	0.0032
	120	0.0514	0.4724	0.5026	0.0009	0.0328	77.1	0.0046
	175	0.0750	0.7538	0.7479	0.0016	0.0366	141	0.0068
	250	0.0838	0.3435	0.8722	0.0021	0.0268	188	0.0076
	500	0.1354	0.5526	1.3152	0.0031	0.0437	311	0.0122
	750	0.2685	1.0916	2.6320	0.0062	0.0865	615	0.0242
	1000	0.4491	1.6773	6.6123	0.0093	0.1699	928	0.0405
Bore/Drill Rigs Composite		0.0854	0.5068	0.9013	0.0017	0.0367	165	0.0077
Cement and Mortar Mixers	15	0.0075	0.0386	0.0475	0.0001	0.0023	6.3	0.0007
	25	0.0293	0.0852	0.1548	0.0002	0.0091	17.6	0.0026
Cement and Mortar Mixers Composite		0.0093	0.0425	0.0564	0.0001	0.0029	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1261	0.0002	0.0050	16.5	0.0018
	50	0.1047	0.3015	0.2972	0.0004	0.0268	30.2	0.0094
	120	0.1155	0.4880	0.7625	0.0009	0.0639	74.1	0.0104
	175	0.1685	0.8723	1.4507	0.0018	0.0767	160	0.0152
Concrete/Industrial Saws Composite		0.1090	0.4148	0.5910	0.0007	0.0491	58.5	0.0098
Cranes	50	0.1101	0.2979	0.2478	0.0003	0.0258	23.2	0.0099
	120	0.0982	0.3650	0.5844	0.0006	0.0533	50.1	0.0089
	175	0.1089	0.4838	0.8259	0.0009	0.0479	80.3	0.0098
	250	0.1103	0.3103	1.0712	0.0013	0.0388	112	0.0100
	500	0.1635	0.5691	1.5327	0.0018	0.0571	180	0.0148
	750	0.2767	0.9554	2.6486	0.0030	0.0974	303	0.0250
	9999	0.9905	3.5715	10.9484	0.0098	0.3384	971	0.0894
Cranes Composite		0.1425	0.4946	1.2753	0.0014	0.0553	129	0.0129
Crawler Tractors	50	0.1262	0.3333	0.2713	0.0003	0.0289	24.9	0.0114
	120	0.1374	0.4906	0.8120	0.0008	0.0729	65.8	0.0124
	175	0.1758	0.7491	1.3245	0.0014	0.0765	121	0.0159
	250	0.1854	0.5225	1.7044	0.0019	0.0667	166	0.0167
	500	0.2659	1.0217	2.3914	0.0025	0.0942	259	0.0240
	750	0.4784	1.8248	4.3817	0.0047	0.1705	465	0.0432
	1000	0.7229	2.8959	7.7626	0.0066	0.2503	658	0.0652
Crawler Tractors Composite		0.1671	0.6051	1.2309	0.0013	0.0752	114	0.0151
Crushing/Proc. Equipment	50	0.1927	0.5215	0.4545	0.0006	0.0462	44.0	0.0174
	120	0.1525	0.5829	0.9172	0.0010	0.0851	83.1	0.0138
	175	0.2088	0.9654	1.6343	0.0019	0.0946	167	0.0188
	250	0.1953	0.5592	2.1896	0.0028	0.0682	245	0.0176
	500	0.2733	0.8961	2.9457	0.0037	0.0972	374	0.0247
	750	0.4361	1.3892	4.8387	0.0059	0.1560	589	0.0394
	9999	1.2112	4.0327	14.2648	0.0131	0.4203	1,308	0.1093
Crushing/Proc. Equipment Composite		0.1872	0.6911	1.2633	0.0015	0.0819	132	0.0169
Dumpers/Tenders	25	0.0100	0.0324	0.0614	0.0001	0.0031	7.6	0.0009
Dumpers/Tenders Composite		0.0100	0.0324	0.0614	0.0001	0.0031	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0048	16.4	0.0018
	50	0.0912	0.2933	0.2568	0.0003	0.0237	25.0	0.0082
	120	0.1183	0.5220	0.7300	0.0009	0.0657	73.6	0.0107
	175	0.1288	0.6678	0.9613	0.0013	0.0569	112	0.0116
	250	0.1301	0.3630	1.2438	0.0018	0.0415	159	0.0117
	500	0.1805	0.5493	1.6112	0.0023	0.0574	234	0.0163
	750	0.3013	0.9096	2.7605	0.0039	0.0969	387	0.0272
Excavators Composite		0.1300	0.5401	0.9817	0.0013	0.0536	120	0.0117
Forklifts	50	0.0514	0.1682	0.1488	0.0002	0.0136	14.7	0.0046
	120	0.0489	0.2195	0.3017	0.0004	0.0277	31.2	0.0044
	175	0.0624	0.3304	0.4664	0.0006	0.0278	56.1	0.0056
	250	0.0595	0.1638	0.5872	0.0009	0.0187	77.1	0.0054
	500	0.0806	0.2241	0.7257	0.0011	0.0252	111	0.0073
Forklifts Composite		0.0585	0.2257	0.4330	0.0006	0.0231	54.4	0.0053
Generator Sets	15	0.0157	0.0698	0.1063	0.0002	0.0061	10.2	0.0014
	25	0.0276	0.0951	0.1632	0.0002	0.0096	17.6	0.0025
	50	0.0959	0.2734	0.2966	0.0004	0.0255	30.6	0.0087
	120	0.1206	0.4956	0.8099	0.0009	0.0640	77.9	0.0109
	175	0.1460	0.7413	1.3131	0.0016	0.0644	142	0.0132
	250	0.1372	0.4502	1.8047	0.0024	0.0508	213	0.0124
	500	0.1952	0.7617	2.5896	0.0033	0.0756	337	0.0176
	750	0.3257	1.2296	4.3019	0.0055	0.1241	544	0.0294
	9999	0.8673	3.0642	10.8871	0.0105	0.3104	1,049	0.0783
Generator Sets Composite		0.0832	0.3121	0.5779	0.0007	0.0351	61.0	0.0075
Graders	50	0.1182	0.3365	0.2882	0.0004	0.0286	27.5	0.0107
	120	0.1348	0.5355	0.8223	0.0009	0.0740	75.0	0.0122
	175	0.1554	0.7363	1.1931	0.0014	0.0688	124	0.0140
	250	0.1575	0.4508	1.5344	0.0019	0.0547	172	0.0142
	500	0.1947	0.6639	1.8193	0.0023	0.0671	229	0.0176
	750	0.4147	1.4022	3.9602	0.0049	0.1439	486	0.0374
Graders Composite		0.1533	0.6129	1.2503	0.0015	0.0649	133	0.0138
Off-Highway Tractors	120	0.2224	0.7269	1.2964	0.0011	0.1143	93.7	0.0201
	175	0.2135	0.8404	1.6085	0.0015	0.0923	130	0.0193

SCAB Fleet Average Emission Factors (Diesel)
2012
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	250	0.1718	0.4896	1.5282	0.0015	0.0644	130	0.0155
	750	0.6814	3.0883	6.1417	0.0057	0.2515	568	0.0615
	1000	1.0246	4.8137	10.5080	0.0082	0.3620	814	0.0924
Off-Highway Tractors Composite		0.2170	0.7878	1.7969	0.0017	0.0871	151	0.0196
Off-Highway Trucks	175	0.1533	0.7593	1.1072	0.0014	0.0666	125	0.0138
	250	0.1469	0.3944	1.3513	0.0019	0.0461	167	0.0133
	500	0.2263	0.6661	1.9463	0.0027	0.0705	272	0.0204
	750	0.3695	1.0792	3.2612	0.0044	0.1164	442	0.0333
	1000	0.5790	1.7854	6.4025	0.0063	0.1933	625	0.0522
Off-Highway Trucks Composite		0.2241	0.6635	2.0158	0.0027	0.0715	260	0.0202
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0028	10.1	0.0011
	25	0.0160	0.0544	0.1019	0.0002	0.0044	13.2	0.0014
	50	0.0842	0.2740	0.2707	0.0004	0.0228	28.0	0.0076
	120	0.1104	0.5320	0.7540	0.0009	0.0633	80.9	0.0100
	175	0.1008	0.5880	0.8599	0.0012	0.0467	107	0.0091
	500	0.1517	0.5426	1.6573	0.0025	0.0545	254	0.0137
Other Construction Equipment Composite		0.0925	0.3847	0.8599	0.0013	0.0366	123	0.0083
Other General Industrial Equipmen	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0045	15.3	0.0017
	50	0.1085	0.2856	0.2332	0.0003	0.0253	21.7	0.0098
	120	0.1274	0.4542	0.7277	0.0007	0.0703	62.0	0.0115
	175	0.1349	0.5757	1.0001	0.0011	0.0599	95.9	0.0122
	250	0.1235	0.3281	1.2983	0.0015	0.0417	136	0.0111
	500	0.2232	0.6772	2.2367	0.0026	0.0758	265	0.0201
	750	0.3707	1.1162	3.8016	0.0044	0.1273	437	0.0334
	1000	0.5621	1.8453	6.4018	0.0056	0.1947	560	0.0507
Other General Industrial Equipmen Composite		0.1635	0.5362	1.4520	0.0016	0.0632	152	0.0148
Other Material Handling Equipment	50	0.1506	0.3950	0.3243	0.0004	0.0352	30.3	0.0136
	120	0.1239	0.4423	0.7103	0.0007	0.0684	60.7	0.0112
	175	0.1703	0.7292	1.2706	0.0014	0.0759	122	0.0154
	250	0.1305	0.3496	1.3863	0.0016	0.0443	145	0.0118
	500	0.1590	0.4876	1.6124	0.0019	0.0545	192	0.0143
	9999	0.7467	2.4395	8.4619	0.0073	0.2565	741	0.0674
Other Material Handling Equipment Composite		0.1566	0.5108	1.4125	0.0015	0.0613	141	0.0141
Pavers	25	0.0255	0.0811	0.1531	0.0002	0.0080	18.7	0.0023
	50	0.1451	0.3680	0.3038	0.0004	0.0327	28.0	0.0131
	120	0.1467	0.5107	0.8788	0.0008	0.0776	69.2	0.0132
	175	0.1864	0.7833	1.4495	0.0014	0.0819	128	0.0168
	250	0.2182	0.6365	2.0698	0.0022	0.0818	194	0.0197
	500	0.2383	0.9957	2.2418	0.0023	0.0883	233	0.0215
Pavers Composite		0.1596	0.5445	0.8980	0.0009	0.0642	77.9	0.0144
Paving Equipment	25	0.0153	0.0520	0.0974	0.0002	0.0042	12.6	0.0014
	50	0.1239	0.3124	0.2591	0.0003	0.0279	23.9	0.0112
	120	0.1150	0.3997	0.6897	0.0006	0.0610	54.5	0.0104
	175	0.1455	0.6114	1.1384	0.0011	0.0640	101	0.0131
	250	0.1349	0.3946	1.2976	0.0014	0.0507	122	0.0122
Paving Equipment Composite		0.1204	0.4365	0.8114	0.0008	0.0570	68.9	0.0109
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0013	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0013	4.3	0.0005
Pressure Washers	15	0.0075	0.0334	0.0509	0.0001	0.0029	4.9	0.0007
	25	0.0112	0.0385	0.0662	0.0001	0.0039	7.1	0.0010
	50	0.0349	0.1074	0.1339	0.0002	0.0102	14.3	0.0032
	120	0.0332	0.1458	0.2385	0.0003	0.0172	24.1	0.0030
Pressure Washers Composite		0.0173	0.0635	0.0921	0.0001	0.0063	9.4	0.0016
Pumps	15	0.0133	0.0508	0.0790	0.0001	0.0054	7.4	0.0012
	25	0.0386	0.1051	0.1803	0.0002	0.0117	19.5	0.0035
	50	0.1155	0.3229	0.3362	0.0004	0.0299	34.3	0.0104
	120	0.1250	0.5036	0.8226	0.0009	0.0669	77.9	0.0113
	175	0.1498	0.7431	1.3164	0.0016	0.0664	140	0.0135
	250	0.1357	0.4345	1.7375	0.0023	0.0501	201	0.0122
	500	0.2089	0.8032	2.6861	0.0034	0.0803	345	0.0188
	750	0.3557	1.3279	4.5700	0.0057	0.1350	571	0.0321
	9999	1.1456	4.0641	14.2305	0.0136	0.4081	1,355	0.1034
Pumps Composite		0.0813	0.2983	0.4999	0.0006	0.0351	49.6	0.0073
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0162	0.0549	0.1029	0.0002	0.0045	13.3	0.0015
	50	0.1105	0.2994	0.2677	0.0003	0.0263	26.0	0.0100
	120	0.1054	0.4098	0.6619	0.0007	0.0574	59.0	0.0095
	175	0.1320	0.6220	1.0725	0.0012	0.0591	108	0.0119
	250	0.1347	0.4083	1.4103	0.0017	0.0498	153	0.0122
	500	0.1755	0.6752	1.8093	0.0022	0.0652	219	0.0158
Rollers Composite		0.1038	0.4107	0.6936	0.0008	0.0488	67.1	0.0094
Rough Terrain Forklifts	50	0.1315	0.3910	0.3455	0.0004	0.0330	33.9	0.0119
	120	0.1038	0.4364	0.6425	0.0007	0.0585	62.4	0.0094
	175	0.1444	0.7268	1.1204	0.0014	0.0652	125	0.0130
	250	0.1353	0.3896	1.4082	0.0019	0.0458	171	0.0122
	500	0.1894	0.5985	1.8577	0.0025	0.0642	257	0.0171
Rough Terrain Forklifts Composite		0.1093	0.4680	0.6995	0.0008	0.0587	70.3	0.0099
Rubber Tired Dozers	175	0.2209	0.8528	1.6304	0.0015	0.0945	129	0.0199
	250	0.2545	0.7124	2.1985	0.0021	0.0942	183	0.0230
	500	0.3345	1.5220	2.8822	0.0026	0.1210	265	0.0302
	750	0.5042	2.2809	4.4100	0.0040	0.1832	399	0.0455
	1000	0.7807	3.6654	7.7816	0.0060	0.2729	592	0.0704
Rubber Tired Dozers Composite		0.3114	1.2491	2.6866	0.0025	0.1137	239	0.0281
Rubber Tired Loaders	25	0.0205	0.0697	0.1295	0.0002	0.0052	16.9	0.0018
	50	0.1315	0.3756	0.3242	0.0004	0.0319	31.1	0.0119
	120	0.1045	0.4187	0.6404	0.0007	0.0576	58.9	0.0094
	175	0.1312	0.6288	1.0135	0.0012	0.0583	106	0.0118
	250	0.1330	0.3838	1.3129	0.0017	0.0462	149	0.0120
	500	0.1961	0.6755	1.8555	0.0023	0.0677	237	0.0177
	750	0.4044	1.3812	3.9115	0.0049	0.1408	486	0.0365
	1000	0.5480	1.9543	6.3337	0.0060	0.1909	594	0.0494
Rubber Tired Loaders Composite		0.1272	0.4855	1.0034	0.0012	0.0558	109	0.0115
Scrapers	120	0.1990	0.7011	1.1749	0.0011	0.1054	93.9	0.0180

SCAB Fleet Average Emission Factors (Diesel)
2012
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	175	0.2172	0.9158	1.6429	0.0017	0.0945	148	0.0196
	250	0.2367	0.6699	2.1849	0.0024	0.0859	209	0.0214
	500	0.3333	1.3000	3.0162	0.0032	0.1190	321	0.0301
	750	0.5779	2.2380	5.3231	0.0056	0.2075	555	0.0521
Scrapers Composite		0.2916	1.0984	2.5680	0.0027	0.1087	262	0.0263
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	6.2	0.0006
	50	0.1270	0.3587	0.3564	0.0005	0.0324	36.2	0.0115
	120	0.1284	0.5269	0.8360	0.0009	0.0703	80.2	0.0116
	175	0.1661	0.8370	1.4268	0.0017	0.0750	155	0.0150
	250	0.1746	0.5516	2.1599	0.0029	0.0639	255	0.0158
Signal Boards Composite		0.0203	0.0940	0.1470	0.0002	0.0083	16.7	0.0018
Skid Steer Loaders	25	0.0211	0.0635	0.1189	0.0002	0.0067	13.8	0.0019
	50	0.0596	0.2332	0.2402	0.0003	0.0180	25.5	0.0054
	120	0.0482	0.2769	0.3536	0.0005	0.0286	42.8	0.0043
Skid Steer Loaders Composite		0.0534	0.2360	0.2686	0.0004	0.0207	30.3	0.0048
Surfacing Equipment	50	0.0513	0.1441	0.1411	0.0002	0.0128	14.1	0.0046
	120	0.1040	0.4251	0.6895	0.0007	0.0557	63.8	0.0094
	175	0.0950	0.4745	0.8195	0.0010	0.0422	85.8	0.0086
	250	0.1095	0.3526	1.1993	0.0015	0.0413	135	0.0099
	500	0.1631	0.6813	1.7819	0.0022	0.0622	221	0.0147
	750	0.2601	1.0660	2.8642	0.0035	0.0986	347	0.0235
Surfacing Equipment Composite		0.1362	0.5467	1.3678	0.0017	0.0512	166	0.0123
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1501	0.0002	0.0060	19.6	0.0021
	50	0.1195	0.3565	0.3179	0.0004	0.0302	31.6	0.0108
	120	0.1233	0.5204	0.7534	0.0009	0.0706	75.0	0.0111
	175	0.1575	0.8008	1.2212	0.0016	0.0717	139	0.0142
	250	0.1205	0.3447	1.3019	0.0018	0.0402	162	0.0109
Sweepers/Scrubbers Composite		0.1278	0.5215	0.7403	0.0009	0.0576	78.5	0.0115
Tractors/Loaders/Backhoes	25	0.0199	0.0662	0.1250	0.0002	0.0061	15.9	0.0018
	50	0.1006	0.3305	0.3030	0.0004	0.0267	30.3	0.0091
	120	0.0760	0.3557	0.4910	0.0006	0.0432	51.7	0.0069
	175	0.1058	0.5866	0.8294	0.0011	0.0478	101	0.0095
	250	0.1264	0.3755	1.2813	0.0019	0.0415	172	0.0114
	500	0.2386	0.7714	2.2621	0.0039	0.0784	345	0.0215
	750	0.3611	1.1563	3.5105	0.0058	0.1199	517	0.0326
Tractors/Loaders/Backhoes Composite		0.0862	0.3824	0.5816	0.0008	0.0435	66.8	0.0078
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0398	0.1355	0.2519	0.0004	0.0101	32.9	0.0036
	50	0.1656	0.4176	0.3536	0.0004	0.0374	32.9	0.0149
	120	0.1354	0.4732	0.8257	0.0008	0.0709	64.9	0.0122
	175	0.2050	0.8694	1.6306	0.0016	0.0901	144	0.0185
	250	0.2483	0.7418	2.3854	0.0025	0.0951	223	0.0224
	500	0.3135	1.4011	3.0220	0.0031	0.1190	311	0.0283
	750	0.5949	2.6307	5.8034	0.0059	0.2259	587	0.0537
Trenchers Composite		0.1507	0.4749	0.6995	0.0007	0.0582	58.7	0.0136
Welders	15	0.0111	0.0425	0.0660	0.0001	0.0045	6.2	0.0010
	25	0.0224	0.0609	0.1044	0.0001	0.0068	11.3	0.0020
	50	0.1071	0.2854	0.2637	0.0003	0.0260	26.0	0.0097
	120	0.0708	0.2687	0.4376	0.0005	0.0387	39.5	0.0064
	175	0.1183	0.5475	0.9688	0.0011	0.0531	98.2	0.0107
	250	0.0909	0.2704	1.0791	0.0013	0.0329	119	0.0082
	500	0.1154	0.4072	1.3538	0.0016	0.0431	168	0.0104
Welders Composite		0.0703	0.2150	0.2702	0.0003	0.0243	25.6	0.0063

SCAB Fleet Average Emission Factors (Diesel)
2013
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Aerial Lifts	15	0.0101	0.0528	0.0637	0.0001	0.0027	8.7	0.0009
	25	0.0166	0.0503	0.0937	0.0001	0.0051	11.0	0.0015
	50	0.0592	0.1757	0.1840	0.0003	0.0156	19.6	0.0053
	120	0.0558	0.2425	0.3758	0.0004	0.0299	38.1	0.0050
	500	0.1191	0.4671	1.5310	0.0021	0.0448	213	0.0107
	750	0.2221	0.8443	2.8534	0.0039	0.0825	385	0.0200
Aerial Lifts Composite		0.0529	0.1925	0.3059	0.0004	0.0202	34.7	0.0048
Air Compressors	15	0.0122	0.0484	0.0732	0.0001	0.0048	7.2	0.0011
	25	0.0266	0.0744	0.1306	0.0002	0.0081	14.4	0.0024
	50	0.0921	0.2546	0.2221	0.0003	0.0220	22.3	0.0083
	120	0.0825	0.3251	0.4991	0.0006	0.0456	47.0	0.0074
	175	0.1059	0.5054	0.8385	0.0010	0.0472	88.5	0.0096
	250	0.1007	0.2955	1.1320	0.0015	0.0347	131	0.0091
	500	0.1626	0.5399	1.7639	0.0023	0.0570	232	0.0147
	750	0.2547	0.8344	2.8139	0.0036	0.0898	358	0.0230
	1000	0.4190	1.4213	5.0841	0.0049	0.1474	486	0.0378
Air Compressors Composite		0.0913	0.3376	0.6065	0.0007	0.0434	63.6	0.0082
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0193	0.0658	0.1226	0.0002	0.0049	16.0	0.0017
	50	0.0289	0.2282	0.2568	0.0004	0.0120	31.0	0.0026
	120	0.0447	0.4698	0.4583	0.0009	0.0257	77.1	0.0040
	175	0.0704	0.7538	0.6931	0.0016	0.0302	141	0.0063
	250	0.0795	0.3429	0.7632	0.0021	0.0221	188	0.0072
	500	0.1295	0.5517	1.1717	0.0031	0.0361	311	0.0117
	750	0.2565	1.0899	2.3376	0.0062	0.0715	615	0.0231
	1000	0.4163	1.6675	5.9553	0.0093	0.1544	928	0.0376
Bore/Drill Rigs Composite		0.0786	0.5044	0.8125	0.0017	0.0302	165	0.0071
Cement and Mortar Mixers	15	0.0074	0.0386	0.0470	0.0001	0.0021	6.3	0.0007
	25	0.0270	0.0813	0.1510	0.0002	0.0083	17.6	0.0024
Cement and Mortar Mixers Composite		0.0091	0.0421	0.0556	0.0001	0.0026	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1257	0.0002	0.0049	16.5	0.0018
	50	0.0955	0.2918	0.2858	0.0004	0.0247	30.2	0.0086
	120	0.1065	0.4836	0.7154	0.0009	0.0589	74.1	0.0096
	175	0.1569	0.8701	1.3612	0.0018	0.0706	160	0.0142
Concrete/Industrial Saws Composite		0.1002	0.4088	0.5572	0.0007	0.0452	58.5	0.0090
Cranes	50	0.1015	0.2892	0.2394	0.0003	0.0239	23.2	0.0092
	120	0.0919	0.3618	0.5508	0.0006	0.0493	50.1	0.0083
	175	0.1031	0.4821	0.7769	0.0009	0.0445	80.3	0.0093
	250	0.1040	0.2948	0.9948	0.0013	0.0351	112	0.0094
	500	0.1551	0.5292	1.4230	0.0018	0.0518	180	0.0140
	750	0.2625	0.8887	2.4614	0.0030	0.0885	303	0.0237
	9999	0.9491	3.3249	10.3665	0.0098	0.3189	971	0.0856
Cranes Composite		0.1348	0.4737	1.1934	0.0014	0.0508	129	0.0122
Crawler Tractors	50	0.1176	0.3246	0.2627	0.0003	0.0270	24.9	0.0106
	120	0.1293	0.4858	0.7686	0.0008	0.0677	65.8	0.0117
	175	0.1674	0.7448	1.2529	0.0014	0.0713	121	0.0151
	250	0.1764	0.5000	1.5945	0.0019	0.0613	166	0.0159
	500	0.2542	0.9504	2.2389	0.0025	0.0868	259	0.0229
	750	0.4574	1.6983	4.1042	0.0047	0.1573	465	0.0413
	1000	0.6901	2.6950	7.3731	0.0066	0.2361	658	0.0623
Crawler Tractors Composite		0.1584	0.5900	1.1593	0.0013	0.0697	114	0.0143
Crushing/Proc. Equipment	50	0.1741	0.5009	0.4359	0.0006	0.0422	44.0	0.0157
	120	0.1402	0.5764	0.8552	0.0010	0.0779	83.1	0.0127
	175	0.1942	0.9615	1.5237	0.0019	0.0864	167	0.0175
	250	0.1848	0.5425	2.0202	0.0028	0.0620	245	0.0167
	500	0.2608	0.8480	2.7097	0.0037	0.0884	374	0.0235
	750	0.4147	1.3191	4.4498	0.0059	0.1418	589	0.0374
	9999	1.1270	3.6752	13.3218	0.0131	0.3880	1,308	0.1017
Crushing/Proc. Equipment Composite		0.1733	0.6773	1.1752	0.0015	0.0748	132	0.0156
Dumpers/Tenders	25	0.0097	0.0320	0.0601	0.0001	0.0029	7.6	0.0009
Dumpers/Tenders Composite		0.0097	0.0320	0.0601	0.0001	0.0029	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	16.4	0.0018
	50	0.0816	0.2841	0.2458	0.0003	0.0212	25.0	0.0074
	120	0.1086	0.5177	0.6791	0.0009	0.0586	73.6	0.0098
	175	0.1208	0.6668	0.8932	0.0013	0.0512	112	0.0109
	250	0.1242	0.3541	1.1360	0.0018	0.0372	159	0.0112
	500	0.1735	0.5271	1.4763	0.0023	0.0516	234	0.0157
	750	0.2895	0.8731	2.5290	0.0039	0.0871	387	0.0261
Excavators Composite		0.1220	0.5338	0.9071	0.0013	0.0481	120	0.0110
Forklifts	50	0.0445	0.1623	0.1431	0.0002	0.0121	14.7	0.0040
	120	0.0438	0.2176	0.2788	0.0004	0.0241	31.2	0.0040
	175	0.0572	0.3307	0.4261	0.0006	0.0246	56.1	0.0052
	250	0.0570	0.1614	0.5281	0.0009	0.0168	77.1	0.0051
	500	0.0781	0.2208	0.6592	0.0011	0.0228	111	0.0070
Forklifts Composite		0.0541	0.2235	0.3950	0.0006	0.0204	54.4	0.0049
Generator Sets	15	0.0149	0.0684	0.1016	0.0002	0.0058	10.2	0.0013
	25	0.0266	0.0908	0.1594	0.0002	0.0091	17.6	0.0024
	50	0.0872	0.2639	0.2847	0.0004	0.0234	30.6	0.0079
	120	0.1106	0.4905	0.7587	0.0009	0.0590	77.9	0.0100
	175	0.1347	0.7388	1.2314	0.0016	0.0592	142	0.0122
	250	0.1277	0.4365	1.6763	0.0024	0.0464	213	0.0115
	500	0.1818	0.7230	2.3955	0.0033	0.0690	337	0.0164
	750	0.3035	1.1671	3.9863	0.0055	0.1134	544	0.0274
	9999	0.7957	2.8065	10.2314	0.0105	0.2844	1,049	0.0718
Generator Sets Composite		0.0767	0.3045	0.5430	0.0007	0.0324	61.0	0.0069
Graders	50	0.1080	0.3263	0.2772	0.0004	0.0262	27.5	0.0097
	120	0.1254	0.5310	0.7729	0.0009	0.0676	75.0	0.0113
	175	0.1467	0.7345	1.1193	0.0014	0.0631	124	0.0132
	250	0.1492	0.4331	1.4184	0.0019	0.0494	172	0.0135
	500	0.1855	0.6289	1.6842	0.0023	0.0608	229	0.0167
	750	0.3952	1.3289	3.6674	0.0049	0.1306	486	0.0357
Graders Composite		0.1446	0.6053	1.1663	0.0015	0.0593	133	0.0130
Off-Highway Tractors	120	0.2113	0.7191	1.2368	0.0011	0.1078	93.7	0.0191
	175	0.2045	0.8335	1.5337	0.0015	0.0871	130	0.0185
	250	0.1641	0.4691	1.4453	0.0015	0.0601	130	0.0148

SCAB Fleet Average Emission Factors (Diesel)
2013
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	750	0.6538	2.8815	5.8130	0.0057	0.2353	568	0.0590
	1000	0.9818	4.4978	10.0554	0.0082	0.3436	814	0.0886
Off-Highway Tractors Composite		0.2077	0.7649	1.7062	0.0017	0.0818	151	0.0187
Off-Highway Trucks	175	0.1441	0.7580	1.0305	0.0014	0.0602	125	0.0130
	250	0.1400	0.3837	1.2373	0.0019	0.0412	167	0.0126
	500	0.2170	0.6362	1.7865	0.0027	0.0634	272	0.0196
	750	0.3542	1.0311	2.9938	0.0044	0.1046	442	0.0320
	1000	0.5484	1.6691	5.9808	0.0063	0.1796	625	0.0495
Off-Highway Trucks Composite		0.2141	0.6361	1.8543	0.0027	0.0644	260	0.0193
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0029	10.1	0.0011
	25	0.0160	0.0544	0.1013	0.0002	0.0041	13.2	0.0014
	50	0.0753	0.2653	0.2585	0.0004	0.0205	28.0	0.0068
	120	0.1006	0.5277	0.7025	0.0009	0.0567	80.9	0.0091
	175	0.0935	0.5873	0.8011	0.0012	0.0420	107	0.0084
	500	0.1452	0.5234	1.5187	0.0025	0.0491	254	0.0131
Other Construction Equipment Composite		0.0872	0.3765	0.7938	0.0013	0.0330	123	0.0079
Other General Industrial Equipmen	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0044	15.3	0.0017
	50	0.0980	0.2738	0.2243	0.0003	0.0232	21.7	0.0088
	120	0.1177	0.4487	0.6789	0.0007	0.0644	62.0	0.0106
	175	0.1261	0.5728	0.9333	0.0011	0.0549	95.9	0.0114
	250	0.1174	0.3177	1.2013	0.0015	0.0380	136	0.0106
	500	0.2135	0.6384	2.0642	0.0026	0.0693	265	0.0193
	750	0.3546	1.0522	3.5146	0.0044	0.1165	437	0.0320
	1000	0.5246	1.6793	6.0067	0.0056	0.1805	560	0.0473
Other General Industrial Equipmen Composite		0.1542	0.5159	1.3484	0.0016	0.0580	152	0.0139
Other Material Handling Equipment	50	0.1361	0.3789	0.3119	0.0004	0.0323	30.3	0.0123
	120	0.1144	0.4370	0.6628	0.0007	0.0628	60.7	0.0103
	175	0.1591	0.7257	1.1860	0.0014	0.0696	122	0.0144
	250	0.1241	0.3385	1.2829	0.0016	0.0405	145	0.0112
	500	0.1521	0.4596	1.4883	0.0019	0.0498	192	0.0137
	9999	0.7021	2.2197	7.9424	0.0073	0.2379	741	0.0634
Other Material Handling Equipment Composite		0.1473	0.4951	1.3132	0.0015	0.0562	141	0.0133
Pavers	25	0.0247	0.0799	0.1500	0.0002	0.0075	18.7	0.0022
	50	0.1366	0.3592	0.2948	0.0004	0.0308	28.0	0.0123
	120	0.1387	0.5057	0.8357	0.0008	0.0729	69.2	0.0125
	175	0.1777	0.7784	1.3769	0.0014	0.0769	128	0.0160
	250	0.2072	0.6081	1.9469	0.0022	0.0756	194	0.0187
	500	0.2275	0.9254	2.1080	0.0023	0.0818	233	0.0205
Pavers Composite		0.1511	0.5357	0.8542	0.0009	0.0603	77.9	0.0136
Paving Equipment	25	0.0153	0.0520	0.0968	0.0002	0.0039	12.6	0.0014
	50	0.1166	0.3049	0.2514	0.0003	0.0263	23.9	0.0105
	120	0.1087	0.3958	0.6561	0.0006	0.0574	54.5	0.0098
	175	0.1387	0.6079	1.0816	0.0011	0.0602	101	0.0125
	250	0.1277	0.3763	1.2206	0.0014	0.0467	122	0.0115
Paving Equipment Composite		0.1142	0.4316	0.7709	0.0008	0.0536	68.9	0.0103
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Pressure Washers	15	0.0071	0.0328	0.0487	0.0001	0.0028	4.9	0.0006
	25	0.0108	0.0368	0.0646	0.0001	0.0037	7.1	0.0010
	50	0.0315	0.1037	0.1284	0.0002	0.0094	14.3	0.0028
	120	0.0302	0.1443	0.2235	0.0003	0.0157	24.1	0.0027
Pressure Washers Composite		0.0159	0.0619	0.0878	0.0001	0.0058	9.4	0.0014
Pumps	15	0.0125	0.0497	0.0752	0.0001	0.0049	7.4	0.0011
	25	0.0359	0.1004	0.1761	0.0002	0.0109	19.5	0.0032
	50	0.1052	0.3116	0.3228	0.0004	0.0275	34.3	0.0095
	120	0.1149	0.4984	0.7706	0.0009	0.0617	77.9	0.0104
	175	0.1385	0.7405	1.2344	0.0016	0.0611	140	0.0125
	250	0.1266	0.4210	1.6140	0.0023	0.0457	201	0.0114
	500	0.1952	0.7595	2.4849	0.0034	0.0734	345	0.0176
	750	0.3326	1.2556	4.2353	0.0057	0.1235	571	0.0300
	9999	1.0536	3.7127	13.3750	0.0136	0.3744	1,355	0.0951
Pumps Composite		0.0748	0.2926	0.4705	0.0006	0.0323	49.6	0.0067
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0161	0.0549	0.1023	0.0002	0.0041	13.3	0.0015
	50	0.1025	0.2911	0.2583	0.0003	0.0245	26.0	0.0092
	120	0.0986	0.4063	0.6253	0.0007	0.0534	59.0	0.0089
	175	0.1247	0.6199	1.0114	0.0012	0.0550	108	0.0113
	250	0.1262	0.3887	1.3124	0.0017	0.0451	153	0.0114
	500	0.1654	0.6313	1.6820	0.0022	0.0593	219	0.0149
Rollers Composite		0.0973	0.4060	0.6546	0.0008	0.0453	67.1	0.0088
Rough Terrain Forklifts	50	0.1181	0.3778	0.3316	0.0004	0.0300	33.9	0.0107
	120	0.0955	0.4327	0.5995	0.0007	0.0529	62.4	0.0086
	175	0.1352	0.7256	1.0448	0.0014	0.0592	125	0.0122
	250	0.1294	0.3798	1.2955	0.0019	0.0416	171	0.0117
	500	0.1824	0.5717	1.7096	0.0025	0.0584	257	0.0165
Rough Terrain Forklifts Composite		0.1009	0.4642	0.6526	0.0008	0.0532	70.3	0.0091
Rubber Tired Dozers	175	0.2119	0.8457	1.5561	0.0015	0.0893	129	0.0191
	250	0.2435	0.6833	2.0817	0.0021	0.0881	183	0.0220
	500	0.3211	1.4228	2.7305	0.0026	0.1133	265	0.0290
	750	0.4843	2.1329	4.1797	0.0040	0.1716	399	0.0437
	1000	0.7496	3.4322	7.4509	0.0060	0.2591	592	0.0676
Rubber Tired Dozers Composite		0.2986	1.1749	2.5452	0.0025	0.1064	239	0.0269
Rubber Tired Loaders	25	0.0204	0.0697	0.1292	0.0002	0.0050	16.9	0.0018
	50	0.1200	0.3641	0.3118	0.0004	0.0292	31.1	0.0108
	120	0.0971	0.4152	0.6015	0.0007	0.0525	58.9	0.0088
	175	0.1238	0.6274	0.9501	0.0012	0.0535	106	0.0112
	250	0.1259	0.3685	1.2125	0.0017	0.0417	149	0.0114
	500	0.1867	0.6397	1.7158	0.0023	0.0613	237	0.0168
	750	0.3850	1.3084	3.6184	0.0049	0.1276	486	0.0347
	1000	0.5190	1.8389	5.9660	0.0060	0.1795	594	0.0468
Rubber Tired Loaders Composite		0.1195	0.4763	0.9346	0.0012	0.0508	109	0.0108
Scrapers	120	0.1877	0.6943	1.1141	0.0011	0.0983	93.9	0.0169
	175	0.2070	0.9107	1.5564	0.0017	0.0884	148	0.0187
	250	0.2252	0.6408	2.0481	0.0024	0.0791	209	0.0203

SCAB Fleet Average Emission Factors (Diesel)
2013
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	500	0.3186	1.2113	2.8288	0.0032	0.1099	321	0.0287
	750	0.5525	2.0861	4.9949	0.0056	0.1918	555	0.0499
Scrapers Composite		0.2783	1.0395	2.4118	0.0027	0.1005	262	0.0251
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	6.2	0.0006
	50	0.1151	0.3456	0.3415	0.0005	0.0296	36.2	0.0104
	120	0.1176	0.5214	0.7807	0.0009	0.0644	80.2	0.0106
	175	0.1535	0.8341	1.3333	0.0017	0.0685	155	0.0139
	250	0.1632	0.5350	1.9963	0.0029	0.0580	255	0.0147
Signal Boards Composite		0.0192	0.0934	0.1399	0.0002	0.0077	16.7	0.0017
Skid Steer Loaders	25	0.0202	0.0620	0.1166	0.0002	0.0063	13.8	0.0018
	50	0.0517	0.2263	0.2279	0.0003	0.0157	25.5	0.0047
	120	0.0429	0.2748	0.3267	0.0005	0.0245	42.8	0.0039
Skid Steer Loaders Composite		0.0468	0.2309	0.2522	0.0004	0.0179	30.3	0.0042
Surfacing Equipment	50	0.0477	0.1403	0.1359	0.0002	0.0119	14.1	0.0043
	120	0.0970	0.4215	0.6523	0.0007	0.0517	63.8	0.0088
	175	0.0894	0.4730	0.7742	0.0010	0.0392	85.8	0.0081
	250	0.1025	0.3374	1.1177	0.0015	0.0376	135	0.0092
	500	0.1532	0.6418	1.6597	0.0022	0.0567	221	0.0138
	750	0.2443	1.0046	2.6697	0.0035	0.0900	347	0.0220
Surfacing Equipment Composite		0.1277	0.5182	1.2760	0.0017	0.0468	166	0.0115
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1496	0.0002	0.0058	19.6	0.0021
	50	0.1048	0.3425	0.3055	0.0004	0.0271	31.6	0.0095
	120	0.1107	0.5147	0.6989	0.0009	0.0622	75.0	0.0100
	175	0.1439	0.7997	1.1204	0.0016	0.0637	139	0.0130
	250	0.1146	0.3382	1.1784	0.0018	0.0362	162	0.0103
Sweepers/Scrubbers Composite		0.1148	0.5145	0.6862	0.0009	0.0510	78.5	0.0104
Tractors/Loaders/Backhoes	25	0.0195	0.0657	0.1237	0.0002	0.0056	15.9	0.0018
	50	0.0893	0.3199	0.2893	0.0004	0.0238	30.3	0.0081
	120	0.0694	0.3529	0.4565	0.0006	0.0383	51.7	0.0063
	175	0.0988	0.5861	0.7696	0.0011	0.0428	101	0.0089
	250	0.1204	0.3666	1.1658	0.0019	0.0370	172	0.0109
	500	0.2290	0.7443	2.0659	0.0039	0.0701	345	0.0207
	750	0.3462	1.1159	3.2041	0.0058	0.1072	517	0.0312
Tractors/Loaders/Backhoes Composite		0.0792	0.3782	0.5392	0.0008	0.0387	66.8	0.0071
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0397	0.1355	0.2511	0.0004	0.0097	32.9	0.0036
	50	0.1566	0.4082	0.3432	0.0004	0.0353	32.9	0.0141
	120	0.1281	0.4684	0.7862	0.0008	0.0669	64.9	0.0116
	175	0.1955	0.8632	1.5520	0.0016	0.0849	144	0.0176
	250	0.2354	0.7089	2.2485	0.0025	0.0880	223	0.0212
	500	0.2985	1.3011	2.8470	0.0031	0.1105	311	0.0269
	750	0.5663	2.4440	5.4715	0.0059	0.2099	587	0.0511
Trenchers Composite		0.1427	0.4675	0.6684	0.0007	0.0549	58.7	0.0129
Welders	15	0.0104	0.0416	0.0629	0.0001	0.0041	6.2	0.0009
	25	0.0208	0.0581	0.1020	0.0001	0.0063	11.3	0.0019
	50	0.0979	0.2753	0.2535	0.0003	0.0240	26.0	0.0088
	120	0.0654	0.2659	0.4099	0.0005	0.0358	39.5	0.0059
	175	0.1101	0.5455	0.9083	0.0011	0.0490	98.2	0.0099
	250	0.0855	0.2618	1.0026	0.0013	0.0301	119	0.0077
	500	0.1092	0.3838	1.2526	0.0016	0.0394	168	0.0098
Welders Composite		0.0646	0.2096	0.2564	0.0003	0.0225	25.6	0.0058

SCAB Fleet Average Emission Factors (Diesel)
2014
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Aerial Lifts	15	0.0101	0.0528	0.0633	0.0001	0.0026	8.7	0.0009
	25	0.0160	0.0494	0.0919	0.0001	0.0048	11.0	0.0014
	50	0.0534	0.1694	0.1765	0.0003	0.0142	19.6	0.0048
	120	0.0509	0.2400	0.3531	0.0004	0.0272	38.1	0.0046
	500	0.1106	0.4444	1.3843	0.0021	0.0408	213	0.0100
	750	0.2063	0.8033	2.5864	0.0039	0.0751	385	0.0186
Aerial Lifts Composite		0.0483	0.1877	0.2867	0.0004	0.0184	34.7	0.0044
Air Compressors	15	0.0114	0.0474	0.0697	0.0001	0.0044	7.2	0.0010
	25	0.0247	0.0711	0.1275	0.0002	0.0075	14.4	0.0022
	50	0.0831	0.2446	0.2134	0.0003	0.0201	22.3	0.0075
	120	0.0758	0.3216	0.4682	0.0006	0.0416	47.0	0.0068
	175	0.0984	0.5035	0.7837	0.0010	0.0431	88.5	0.0089
	250	0.0948	0.2873	1.0299	0.0015	0.0316	131	0.0086
	500	0.1543	0.5129	1.5945	0.0023	0.0519	232	0.0139
	750	0.2412	0.7927	2.5509	0.0036	0.0819	358	0.0218
	1000	0.3865	1.2935	4.7637	0.0049	0.1363	486	0.0349
Air Compressors Composite		0.0842	0.3313	0.5635	0.0007	0.0396	63.6	0.0076
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0193	0.0658	0.1222	0.0002	0.0048	16.0	0.0017
	50	0.0255	0.2253	0.2394	0.0004	0.0095	31.0	0.0023
	120	0.0409	0.4684	0.4254	0.0009	0.0204	77.1	0.0037
	175	0.0671	0.7539	0.6527	0.0016	0.0246	141	0.0061
	250	0.0737	0.3426	0.6140	0.0021	0.0179	188	0.0066
	500	0.1206	0.5512	0.9516	0.0031	0.0294	311	0.0109
	750	0.2388	1.0890	1.8972	0.0062	0.0582	615	0.0215
	1000	0.3889	1.6591	5.4092	0.0093	0.1411	928	0.0351
Bore/Drill Rigs Composite		0.0729	0.5030	0.7136	0.0017	0.0248	165	0.0066
Cement and Mortar Mixers	15	0.0074	0.0386	0.0466	0.0001	0.0020	6.3	0.0007
	25	0.0259	0.0794	0.1481	0.0002	0.0078	17.6	0.0023
Cement and Mortar Mixers Composite		0.0089	0.0420	0.0550	0.0001	0.0025	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1256	0.0002	0.0048	16.5	0.0018
	50	0.0864	0.2825	0.2750	0.0004	0.0226	30.2	0.0078
	120	0.0978	0.4796	0.6733	0.0009	0.0538	74.1	0.0088
	175	0.1457	0.8685	1.2772	0.0018	0.0645	160	0.0131
Concrete/Industrial Saws Composite		0.0917	0.4031	0.5267	0.0007	0.0413	58.5	0.0083
Cranes	50	0.0932	0.2808	0.2313	0.0003	0.0221	23.2	0.0084
	120	0.0859	0.3587	0.5189	0.0006	0.0453	50.1	0.0078
	175	0.0977	0.4806	0.7306	0.0009	0.0412	80.3	0.0088
	250	0.0979	0.2817	0.9088	0.0013	0.0317	112	0.0088
	500	0.1468	0.4948	1.2979	0.0018	0.0470	180	0.0132
	750	0.2485	0.8312	2.2480	0.0030	0.0803	303	0.0224
	9999	0.9122	3.0993	9.8090	0.0098	0.3001	971	0.0823
Cranes Composite		0.1276	0.4553	1.1066	0.0014	0.0466	129	0.0115
Crawler Tractors	50	0.1094	0.3164	0.2544	0.0003	0.0251	24.9	0.0099
	120	0.1217	0.4814	0.7280	0.0008	0.0627	65.8	0.0110
	175	0.1594	0.7413	1.1857	0.0014	0.0663	121	0.0144
	250	0.1672	0.4797	1.4702	0.0019	0.0562	166	0.0151
	500	0.2420	0.8885	2.0637	0.0025	0.0798	259	0.0218
	750	0.4355	1.5882	3.7861	0.0047	0.1446	465	0.0393
	1000	0.6595	2.5182	7.0047	0.0066	0.2228	658	0.0595
Crawler Tractors Composite		0.1499	0.5767	1.0853	0.0013	0.0644	114	0.0135
Crushing/Proc. Equipment	50	0.1559	0.4812	0.4182	0.0006	0.0383	44.0	0.0141
	120	0.1284	0.5703	0.8000	0.0010	0.0704	83.1	0.0116
	175	0.1801	0.9583	1.4195	0.0019	0.0782	167	0.0163
	250	0.1744	0.5287	1.8241	0.0028	0.0562	245	0.0157
	500	0.2480	0.8092	2.4341	0.0037	0.0801	374	0.0224
	750	0.3929	1.2625	3.9931	0.0059	0.1283	589	0.0354
	9999	1.0512	3.3574	12.4161	0.0131	0.3572	1,308	0.0948
Crushing/Proc. Equipment Composite		0.1597	0.6651	1.0867	0.0015	0.0677	132	0.0144
Dumpers/Tenders	25	0.0095	0.0317	0.0595	0.0001	0.0027	7.6	0.0009
Dumpers/Tenders Composite		0.0095	0.0317	0.0595	0.0001	0.0027	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	16.4	0.0018
	50	0.0728	0.2757	0.2354	0.0003	0.0189	25.0	0.0066
	120	0.0998	0.5137	0.6331	0.0009	0.0519	73.6	0.0090
	175	0.1134	0.6660	0.8323	0.0013	0.0457	112	0.0102
	250	0.1180	0.3480	1.0099	0.0018	0.0333	159	0.0106
	500	0.1657	0.5102	1.3127	0.0023	0.0463	234	0.0149
	750	0.2764	0.8452	2.2503	0.0039	0.0782	387	0.0249
Excavators Composite		0.1143	0.5289	0.8299	0.0013	0.0428	120	0.0103
Forklifts	50	0.0381	0.1569	0.1376	0.0002	0.0106	14.7	0.0034
	120	0.0390	0.2158	0.2571	0.0004	0.0206	31.2	0.0035
	175	0.0524	0.3311	0.3883	0.0006	0.0214	56.1	0.0047
	250	0.0542	0.1595	0.4606	0.0009	0.0149	77.1	0.0049
	500	0.0752	0.2182	0.5845	0.0011	0.0206	111	0.0068
Forklifts Composite		0.0497	0.2215	0.3551	0.0006	0.0178	54.4	0.0045
Generator Sets	15	0.0142	0.0670	0.0971	0.0002	0.0054	10.2	0.0013
	25	0.0256	0.0868	0.1557	0.0002	0.0085	17.6	0.0023
	50	0.0785	0.2545	0.2731	0.0004	0.0213	30.6	0.0071
	120	0.1008	0.4857	0.7130	0.0009	0.0537	77.9	0.0091
	175	0.1236	0.7367	1.1536	0.0016	0.0538	142	0.0112
	250	0.1181	0.4248	1.5252	0.0024	0.0422	213	0.0107
	500	0.1683	0.6904	2.1655	0.0033	0.0627	337	0.0152
	750	0.2811	1.1145	3.6123	0.0055	0.1032	544	0.0254
	9999	0.7280	2.5702	9.5914	0.0105	0.2595	1,049	0.0657
Generator Sets Composite		0.0702	0.2974	0.5083	0.0007	0.0296	61.0	0.0063
Graders	50	0.0985	0.3168	0.2668	0.0004	0.0239	27.5	0.0089
	120	0.1166	0.5268	0.7270	0.0009	0.0614	75.0	0.0105
	175	0.1386	0.7331	1.0511	0.0014	0.0577	124	0.0125
	250	0.1407	0.4177	1.2844	0.0019	0.0445	172	0.0127
	500	0.1759	0.5992	1.5242	0.0023	0.0550	229	0.0159
	750	0.3746	1.2665	3.3218	0.0049	0.1182	486	0.0338
Graders Composite		0.1362	0.5987	1.0796	0.0015	0.0539	133	0.0123
Off-Highway Tractors	120	0.2008	0.7118	1.1800	0.0011	0.1014	93.7	0.0181
	175	0.1960	0.8272	1.4624	0.0015	0.0820	130	0.0177
	250	0.1564	0.4499	1.3527	0.0015	0.0560	130	0.0141

SCAB Fleet Average Emission Factors (Diesel)
2014
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	750	0.6254	2.6908	5.4422	0.0057	0.2197	568	0.0564
	1000	0.9416	4.2058	9.6214	0.0082	0.3259	814	0.0850
Off-Highway Tractors Composite		0.1986	0.7438	1.6111	0.0017	0.0767	151	0.0179
Off-Highway Trucks	175	0.1355	0.7569	0.9614	0.0014	0.0539	125	0.0122
	250	0.1326	0.3761	1.1048	0.0019	0.0368	167	0.0120
	500	0.2065	0.6134	1.5945	0.0027	0.0567	272	0.0186
	750	0.3371	0.9944	2.6748	0.0044	0.0937	442	0.0304
	1000	0.5191	1.5673	5.5862	0.0063	0.1665	625	0.0468
Off-Highway Trucks Composite		0.2034	0.6148	1.6679	0.0027	0.0579	260	0.0183
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0029	10.1	0.0011
	25	0.0160	0.0544	0.1010	0.0002	0.0039	13.2	0.0014
	50	0.0670	0.2573	0.2471	0.0004	0.0183	28.0	0.0060
	120	0.0915	0.5237	0.6571	0.0009	0.0503	80.9	0.0083
	175	0.0868	0.5867	0.7476	0.0012	0.0374	107	0.0078
	500	0.1379	0.5080	1.3457	0.0025	0.0441	254	0.0124
Other Construction Equipment Composite		0.0820	0.3697	0.7168	0.0013	0.0296	123	0.0074
Other General Industrial Equipmen	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0044	15.3	0.0017
	50	0.0878	0.2626	0.2155	0.0003	0.0211	21.7	0.0079
	120	0.1082	0.4435	0.6351	0.0007	0.0583	62.0	0.0098
	175	0.1174	0.5703	0.8698	0.0011	0.0498	95.9	0.0106
	250	0.1111	0.3089	1.0899	0.0015	0.0346	136	0.0100
	500	0.2032	0.6064	1.8639	0.0026	0.0630	265	0.0183
	750	0.3375	0.9995	3.1813	0.0044	0.1061	437	0.0305
	1000	0.4892	1.5297	5.6194	0.0056	0.1666	560	0.0441
Other General Industrial Equipmen Composite		0.1448	0.4985	1.2360	0.0016	0.0527	152	0.0131
Other Material Handling Equipment	50	0.1219	0.3632	0.2997	0.0004	0.0293	30.3	0.0110
	120	0.1051	0.4319	0.6201	0.0007	0.0568	60.7	0.0095
	175	0.1481	0.7226	1.1054	0.0014	0.0631	122	0.0134
	250	0.1174	0.3291	1.1643	0.0016	0.0368	145	0.0106
	500	0.1448	0.4365	1.3440	0.0019	0.0453	192	0.0131
	9999	0.6617	2.0216	7.4315	0.0073	0.2197	741	0.0597
Other Material Handling Equipment Composite		0.1381	0.4814	1.2068	0.0015	0.0511	141	0.0125
Pavers	25	0.0239	0.0788	0.1472	0.0002	0.0070	18.7	0.0022
	50	0.1281	0.3506	0.2860	0.0004	0.0289	28.0	0.0116
	120	0.1311	0.5011	0.7948	0.0008	0.0682	69.2	0.0118
	175	0.1695	0.7742	1.3079	0.0014	0.0720	128	0.0153
	250	0.1962	0.5822	1.8076	0.0022	0.0696	194	0.0177
	500	0.2165	0.8647	1.9551	0.0023	0.0756	233	0.0195
Pavers Composite		0.1429	0.5277	0.8112	0.0009	0.0564	77.9	0.0129
Paving Equipment	25	0.0152	0.0520	0.0965	0.0002	0.0038	12.6	0.0014
	50	0.1094	0.2974	0.2439	0.0003	0.0247	23.9	0.0099
	120	0.1028	0.3923	0.6241	0.0006	0.0538	54.5	0.0093
	175	0.1323	0.6049	1.0274	0.0011	0.0565	101	0.0119
	250	0.1207	0.3595	1.1333	0.0014	0.0429	122	0.0109
Paving Equipment Composite		0.1082	0.4273	0.7312	0.0008	0.0502	68.9	0.0098
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Pressure Washers	15	0.0068	0.0321	0.0465	0.0001	0.0026	4.9	0.0006
	25	0.0104	0.0352	0.0631	0.0001	0.0035	7.1	0.0009
	50	0.0281	0.1001	0.1230	0.0002	0.0085	14.3	0.0025
	120	0.0274	0.1429	0.2101	0.0003	0.0143	24.1	0.0025
Pressure Washers Composite		0.0145	0.0603	0.0838	0.0001	0.0053	9.4	0.0013
Pumps	15	0.0117	0.0488	0.0716	0.0001	0.0045	7.4	0.0011
	25	0.0333	0.0959	0.1721	0.0002	0.0101	19.5	0.0030
	50	0.0949	0.3004	0.3098	0.0004	0.0251	34.3	0.0086
	120	0.1049	0.4934	0.7241	0.0009	0.0563	77.9	0.0095
	175	0.1275	0.7382	1.1562	0.0016	0.0556	140	0.0115
	250	0.1175	0.4096	1.4689	0.0023	0.0416	201	0.0106
	500	0.1815	0.7226	2.2468	0.0034	0.0667	345	0.0164
	750	0.3092	1.1947	3.8390	0.0057	0.1124	571	0.0279
	9999	0.9669	3.3910	12.5393	0.0136	0.3422	1,355	0.0872
Pumps Composite		0.0683	0.2873	0.4427	0.0006	0.0295	49.6	0.0062
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0161	0.0549	0.1019	0.0002	0.0040	13.3	0.0015
	50	0.0947	0.2831	0.2492	0.0003	0.0226	26.0	0.0085
	120	0.0921	0.4030	0.5906	0.0007	0.0494	59.0	0.0083
	175	0.1178	0.6182	0.9537	0.0012	0.0510	108	0.0106
	250	0.1180	0.3717	1.2002	0.0017	0.0407	153	0.0106
	500	0.1555	0.5926	1.5340	0.0022	0.0537	219	0.0140
Rollers Composite		0.0912	0.4018	0.6164	0.0008	0.0419	67.1	0.0082
Rough Terrain Forklifts	50	0.1055	0.3654	0.3185	0.0004	0.0271	33.9	0.0095
	120	0.0877	0.4292	0.5612	0.0007	0.0474	62.4	0.0079
	175	0.1265	0.7246	0.9750	0.0014	0.0534	125	0.0114
	250	0.1230	0.3717	1.1633	0.0019	0.0376	171	0.0111
	500	0.1745	0.5501	1.5313	0.0025	0.0529	257	0.0157
Rough Terrain Forklifts Composite		0.0929	0.4608	0.6101	0.0008	0.0477	70.3	0.0084
Rubber Tired Dozers	175	0.2034	0.8392	1.4854	0.0015	0.0841	129	0.0183
	250	0.2322	0.6560	1.9517	0.0021	0.0821	183	0.0209
	500	0.3072	1.3307	2.5592	0.0026	0.1058	265	0.0277
	750	0.4633	1.9954	3.9201	0.0040	0.1603	399	0.0418
	1000	0.7196	3.2150	7.1336	0.0060	0.2458	592	0.0649
Rubber Tired Dozers Composite		0.2854	1.1058	2.3867	0.0025	0.0993	239	0.0257
Rubber Tired Loaders	25	0.0204	0.0697	0.1291	0.0002	0.0049	16.9	0.0018
	50	0.1092	0.3535	0.3000	0.0004	0.0266	31.1	0.0099
	120	0.0902	0.4119	0.5654	0.0007	0.0477	58.9	0.0081
	175	0.1168	0.6261	0.8915	0.0012	0.0489	106	0.0105
	250	0.1186	0.3553	1.0966	0.0017	0.0375	149	0.0107
	500	0.1769	0.6085	1.5507	0.0023	0.0554	237	0.0160
	750	0.3648	1.2450	3.2733	0.0049	0.1153	486	0.0329
	1000	0.4927	1.7350	5.6204	0.0060	0.1686	594	0.0445
Rubber Tired Loaders Composite		0.1122	0.4683	0.8620	0.0012	0.0461	109	0.0101
Scrapers	120	0.1770	0.6882	1.0571	0.0011	0.0913	93.9	0.0160
	175	0.1973	0.9065	1.4751	0.0017	0.0824	148	0.0178
	250	0.2135	0.6146	1.8936	0.0024	0.0726	209	0.0193

SCAB Fleet Average Emission Factors (Diesel)
2014
Air Basin SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	500	0.3033	1.1355	2.6139	0.0032	0.1012	321	0.0274
	750	0.5260	1.9562	4.6194	0.0056	0.1767	555	0.0475
Scrapers Composite		0.2648	0.9890	2.2371	0.0027	0.0928	262	0.0239
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	6.2	0.0006
	50	0.1035	0.3331	0.3273	0.0005	0.0269	36.2	0.0093
	120	0.1072	0.5163	0.7320	0.0009	0.0584	80.2	0.0097
	175	0.1415	0.8317	1.2462	0.0017	0.0621	155	0.0128
	250	0.1520	0.5213	1.8056	0.0029	0.0525	255	0.0137
Signal Boards Composite		0.0181	0.0929	0.1332	0.0002	0.0071	16.7	0.0016
Skid Steer Loaders	25	0.0195	0.0610	0.1145	0.0002	0.0059	13.8	0.0018
	50	0.0443	0.2196	0.2161	0.0003	0.0134	25.5	0.0040
	120	0.0380	0.2727	0.3020	0.0005	0.0205	42.8	0.0034
Skid Steer Loaders Composite		0.0406	0.2262	0.2369	0.0004	0.0152	30.3	0.0037
Surfacing Equipment	50	0.0442	0.1367	0.1310	0.0002	0.0110	14.1	0.0040
	120	0.0904	0.4182	0.6174	0.0007	0.0477	63.8	0.0082
	175	0.0842	0.4716	0.7317	0.0010	0.0363	85.8	0.0076
	250	0.0955	0.3237	1.0228	0.0015	0.0341	135	0.0086
	500	0.1433	0.6069	1.5156	0.0022	0.0516	221	0.0129
	750	0.2284	0.9503	2.4407	0.0035	0.0820	347	0.0206
Surfacing Equipment Composite		0.1194	0.4930	1.1688	0.0017	0.0427	166	0.0108
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1495	0.0002	0.0057	19.6	0.0021
	50	0.0911	0.3300	0.2939	0.0004	0.0241	31.6	0.0082
	120	0.0991	0.5098	0.6481	0.0009	0.0543	75.0	0.0089
	175	0.1317	0.7996	1.0280	0.0016	0.0561	139	0.0119
	250	0.1086	0.3327	1.0406	0.0018	0.0325	162	0.0098
Sweepers/Scrubbers Composite		0.1029	0.5086	0.6353	0.0009	0.0447	78.5	0.0093
Tractors/Loaders/Backhoes	25	0.0193	0.0654	0.1228	0.0002	0.0052	15.9	0.0017
	50	0.0792	0.3103	0.2765	0.0004	0.0211	30.3	0.0071
	120	0.0634	0.3503	0.4252	0.0006	0.0337	51.7	0.0057
	175	0.0924	0.5857	0.7161	0.0011	0.0380	101	0.0083
	250	0.1142	0.3608	1.0294	0.0019	0.0330	172	0.0103
	500	0.2186	0.7245	1.8255	0.0039	0.0627	345	0.0197
	750	0.3304	1.0864	2.8317	0.0058	0.0958	517	0.0298
Tractors/Loaders/Backhoes Composite		0.0728	0.3747	0.4977	0.0008	0.0341	66.8	0.0066
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0397	0.1355	0.2509	0.0004	0.0095	32.9	0.0036
	50	0.1477	0.3990	0.3332	0.0004	0.0333	32.9	0.0133
	120	0.1212	0.4640	0.7489	0.0008	0.0629	64.9	0.0109
	175	0.1864	0.8579	1.4773	0.0016	0.0798	144	0.0168
	250	0.2226	0.6786	2.0933	0.0025	0.0813	223	0.0201
	500	0.2835	1.2125	2.6464	0.0031	0.1024	311	0.0256
	750	0.5377	2.2784	5.0912	0.0059	0.1947	587	0.0485
Trenchers Composite		0.1350	0.4606	0.6384	0.0007	0.0517	58.7	0.0122
Welders	15	0.0098	0.0408	0.0599	0.0001	0.0038	6.2	0.0009
	25	0.0193	0.0555	0.0996	0.0001	0.0058	11.3	0.0017
	50	0.0886	0.2652	0.2435	0.0003	0.0219	26.0	0.0080
	120	0.0601	0.2632	0.3850	0.0005	0.0328	39.5	0.0054
	175	0.1021	0.5438	0.8502	0.0011	0.0448	98.2	0.0092
	250	0.0801	0.2545	0.9129	0.0013	0.0274	119	0.0072
	500	0.1028	0.3644	1.1332	0.0016	0.0359	168	0.0093
Welders Composite		0.0589	0.2041	0.2436	0.0003	0.0206	25.6	0.0053

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APPENDIX B: SCAQMD RULES 401, 402, AND 403

(Adopted February 4, 1977)(Amended April 1, 1977)(Amended August 4, 1978)
(Amended September 7, 1979)(Amended February 1, 1980)(Amended July 11, 1980)
(Amended October 15, 1982)(Amended March 2, 1984)(Amended February 5, 1988)
(Amended April 7, 1989)(Amended September 11, 1998)
(Amended November 9, 2001)

RULE 401. VISIBLE EMISSIONS

(a) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) KEROSENE FUEL is petroleum distillate fuel meeting diesel grade 1-D per ASTM D975-78, fuel oil grade No. 1 per ASTM D396-79, or kerosene by conventional commercial specifications.

(2) AN APPROVED SMOKE-REDUCING FUEL ADDITIVE is as approved by the Executive Officer.

(3) A SYNTHETIC ENGINE LUBRICATING OIL is as approved by the Executive Officer.

(b) Requirements

(1) A person shall not discharge into the atmosphere from any single source of emission whatsoever 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 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 subparagraph (b)(1)(A) of this rule.

(2) Not withstanding the provisions of paragraph (b)(1) of this rule, a person shall not discharge into the atmosphere from a commercial charbroiler, excluding those operating with control equipment and those which are chain-driven, or equipment for melting, heating, or holding asphalt or coal tar pitch for on-site roof construction or repair; 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 No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

(B) Of such an opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (b)(2)(A) of this rule.

(3) Notwithstanding the provisions of paragraph (b)(1) of this rule, a person shall not discharge into the atmosphere from any diesel pile-driving hammer, operating exclusively using kerosene fuel, containing approved smoke-reducing fuel additives, as the sole fuel, and using only synthetic engine lubrication oil, or other method deemed technologically and economically feasible by the Executive Officer, any air contaminant for a period or periods aggregating more than four minutes during the driving of a single pile which is:

(A) As dark or darker in shade as that designated No. 2 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 subparagraph (b)(3)(A) of this rule.

(c) Exemptions

(1) The provisions of this rule shall not apply to the following operations:

(A) Asphalt pavement heater operations;

(B) Abrasive blasting operations;

(C) The use of visible emission generating equipment in training sessions conducted by governmental agencies necessary for certifying persons to evaluate visible emissions for compliance with this rule and with the California Health and Safety Code, Section 41704 (l).

(D) Visible emissions from ships which perform emergency boiler shutdowns, tests required by governmental agencies or maneuvers for safety purposes;

(E) Agricultural operations.

(2) The provisions of paragraph (b)(2) shall not apply to a commercial charbroiler, as described in paragraph (b)(2), on or after November 9, 2005, and thereafter the provisions of paragraph (b)(1) shall apply to such equipment.

(Adopted May 7, 1976)

RULE 402. NUISANCE

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

(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).

APPENDIX C: CEQA ENVIRONMENTAL CHECKLIST

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from ~~Section XVII,~~ "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	❒	❒	❒	❒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❒	❒	❒	❒
c) 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)?	❒	❒	❒	❒
d) Expose sensitive receptors to substantial pollutant concentrations?	❒	❒	❒	❒
e) Create objectionable odors affecting a substantial number of people?	❒	❒	❒	❒