APPENDIX C

AIR QUALITY IMPACT ANALYSIS

AECOM Environment

Prepared for:
Wistaria Ranch Solar, LLC
Omaha, Nebraska

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June 2014

Air Quality Impact Analysis

WISTARIA RANCH SOLAR ENERGY CENTER PROJECT
IMPERIAL COUNTY, CALIFORNIA

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IMPERIAL COUNTY, CALIFORNIA

Prepared By Jason Paukovits

Reviewed By Steve Heisler, Ph. D

Contents

List of Appendices

List of Tables

List of Figures

List of Acronyms

AB	Assembly Bill
AC	alternating current
ADT	average daily trips
ALTA	American Land Title Association
APN	Assessor's Parcel Number
APS	Alternative Planning Strategy
AQAP	Air Quality Attainment Plan
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACM	best available control measures
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
CDC	California Department of Conservation
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPV	concentrated photovoltaic
CUP	Conditional Use Permit
DC	direct current
DPM	diesel exhaust particulate matter
EIR	environmental impact report
EMFAC	California Air Resources Board's Emissions Factor model
EPA	United States Environmental Protection Agency
°F	degrees Fahrenheit
GHG	greenhouse gas emissions
GWP	global warming potential
HFC	hydrofluorocarbon
hp	horsepower
H_2S	hydrogen sulfide
ICAPCD	Imperial County Air Pollution Control District
IID	Imperial Irrigation District
IPCC	Intergovernmental Panel on Climate Change
ISECS	Imperial Solar Energy Center South
kV	kilovolt(s)
lbs/day	pounds per day
mg/m^3	milligrams per cubic meter
$\mu g/m^3$	micrograms per cubic meter
MPO	Metropolitan Planning Organization

MT	metric tons
MMT	million metric tons
MW	megawatt(s)
NAAQS	national ambient air quality standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
N_2O	nitrous oxide
O&M	operations and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
OFFROAD	California Air Resources Board Offroad Emissions Model
PCS	Power
PFC	perfluorocarbon
PM	particulate matter
PM_{10}	suspended particulate matter
$PM_{2.5}$	fine particulate matter
ppb	parts per billion
ppm	parts per million
Project	Wistaria Ranch Solar Energy Center Project
PV	photovoltaic
REL	Reference Exposure Level
ROG	reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxide
SR	State route
SSAB	Salton Sea Air Basin
TAC	toxic air contaminant(s)
UNFCC	United Nations Framework Convention on Climate Change
USDOT	United States Department of Transportation
WRCC	Western Region Climatic Center
WRS	Wistaria Ranch Solar, LLC (also “Project Proponent” or “Applicant”)

Executive Summary

The Wistaria Ranch Solar Energy Center Project (Project) is a proposed solar photovoltaic energy-generating facility located in Imperial County, California, approximately 6 miles southwest of the City of El Centro, California, and 5.5 miles directly west of Calexico, California. The Project is being developed by Wistaria Ranch Solar, LLC (WRS, Applicant, or Project Proponent) to sell its electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract to help meet California Renewable Portfolio Standards goals.

This report analyzes the potential air quality impacts resulting from construction and operation of the Project and discusses potential air quality impacts resulting from decommissioning of the Project. The entire Project may be constructed at one time, or it may be built out based on construction of up to 17 different Conditional Use Permit (CUP) areas phased over an approximate 10-year period. The analysis provides details of construction and operation of the entire Project, as well as a discussion of impacts associated with construction and operation of a large CUP area to assist in understanding impacts associated with a phased build-out. Short-term construction-generated emissions of criteria air pollutants and greenhouse gases (GHG) were estimated in accordance with methodology recommended by the Imperial County Air Pollution Control District (ICAPCD). Emissions from fugitive dust, construction equipment exhaust and construction vehicles related to hauling materials and workers to and within the site were estimated using the California Emissions Estimator Model, Version 2013.2.2, OFFROAD 2007 (OFFROAD), and EMFAC 2011 (EMFAC) emission factors. Where available from the Project Proponent, modeling was based on Project-specific data. Where Project-specific information (e.g., amount of land to be disturbed/graded per day, types of equipment to be used, number of construction employees) was not available, reasonable assumptions were used to estimate emissions.

Construction-related emissions of reactive organic gases (ROG), carbon monoxide (CO), sulfur oxides (SO_x), and particulate matter (PM) would not exceed the ICAPCD's recommended thresholds of significance. However, nitrogen oxide (NO_x) emissions would exceed the thresholds of significance. Mitigation measures are recommended to reduce significant impacts for both the full build-out Project and the phased build-out by CUP area. Implementation of mitigation measures would reduce NO_x emissions associated with construction for both the full build-out Project and the phased build-out by CUP area to a less than significant level.

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile and area-source emissions, were quantified using emission factors from OFFROAD and EMFAC. Mobile-source emissions were modeled based on the net increase in daily vehicle trips and the net increase in regional vehicle miles traveled that would result from maintenance activities. Based on the modeling, operation of the full build-out Project or a phased build-out by CUP area would not exceed the thresholds of significance and would not result in significant direct or cumulative air quality impacts.

It is estimated that decommissioning activities, which are anticipated to occur prior to 2050, would require approximately one-half of the off-road equipment and on-road vehicle trips as the initial construction period, as fewer workers would be needed to perform or inspect the decommissioning work. Furthermore, construction equipment used in the decommissioning would be operating with cleaner engines (e.g., Tier 4 or better) that significantly reduce criteria pollutant emissions. Therefore, decommissioning-related emissions of ROG, NOx, CO, SOx, and PM would not exceed the ICAPCD's recommended thresholds of significance.

Construction and decommissioning activities may expose sensitive receptors to diesel PM emissions. However, construction- and decommissioning-related toxic air contaminant emissions are not anticipated to cause a significant impact due to the limited exposure time of construction and decommissioning activities. Construction, operational, and decommissioning activities of the full build-out Project or phased build-out by CUP area are not anticipated to expose a substantial number of people to objectionable odors. This impact would be considered less than significant.

The ICAPCD has not established quantitative significance thresholds for the evaluation of GHG emissions for California Environmental Quality Act analysis. Therefore, this analysis considers guidelines on the levels of GHG emissions that would constitute a cumulatively considerable incremental contribution to climate change based on recommendations from the South Coast Air Quality Management District (SCAQMD) for industrial projects. The total construction-related, operational, and decommissioning-related carbon dioxide equivalent (CO_2e) emissions associated with full build-out of the Project or a phased build-out by CUP area would be less than the SCAQMD-adopted threshold of 10,000 MT CO_2e per year. The full build-out Project or a phased build-out by CUP area would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The Project would not conflict with any applicable plan, policy, or regulation for reducing GHG emissions. These impacts would be considered less than significant.

1.0 Introduction

Wistaria Ranch Solar, LLC (WRS, Applicant, or Project Proponent) is proposing to construct and operate the Wistaria Ranch Solar Energy Center Project (Project), a 250-megawatt (MW) photovoltaic (PV) or concentrated photovoltaic (CPV) solar power-generating facility in Imperial County, California, as is more fully described in Section 2.0 of the Project's Environmental Impact Report (EIR) and summarized herein. This chapter of the Air Quality Impact Analysis as well as Chapter 2 of the EIR defines key terms relevant to understanding the spatial arrangement of the Project and surrounding lands. It also describes features and components of the Project including project construction, operation and decommissioning. Information identified in this chapter regarding the proposed Wistaria Ranch Solar Energy Center is based on technical studies, mapping, figures, and the 17 Conditional Use Permit (CUP) applications submitted to the Imperial County Planning & Development Services Department (ICPDSD) by WRS. Land disturbance acreages, equipment, schedule, mileage, and workforce information is based on the most up-to-date engineering available from the Applicant and generally represent conservative estimates. The Project configuration within the parcels may change based on final engineering and permit requirements for the project components. The goal of the Project is to generate and sell electricity and all renewable and environmental attributes to an electric utility purchaser under a long-term contract in order to help meet California Renewable Portfolio Standards goals.

The purpose of this air quality and greenhouse gas (GHG) analysis is to describe the existing regional and local air quality of the Project area, provide a summary of applicable regulations, and identify the construction, operational, and decommissioning impacts of the Project. This report also identifies measures to mitigate or minimize pollutant emissions that may occur because of Project construction, operation, or decommissioning. The entire Project may be constructed at one time, or it may be built based on as many as 17 different CUP areas over an approximate 10-year period. The analysis provides details of construction and operation of the entire Project, as well as a discussion of impacts associated with construction and operation of a typical CUP area. At the end of the Project's useful life, the facility would be decommissioned and removed, and the Project site restored as an agricultural use.

In March 2012, the Applicant began performing environmental studies to support the Project's California Environmental Quality Act (CEQA) process. This report was prepared in accordance with applicable air quality regulations, and thresholds of significance pursuant to CEQA.

1.1 Project Description

The Project is located in Imperial County, California, approximately 6 miles southwest of the City of El Centro, California, and 5.5 miles directly west of Calexico, California. The U.S./Mexico border is located immediately south of the Project area. The Project is located on privately owned, agricultural land and would be built over approximately 2,793 acres. The Project consists of up to 17 CUPs of approximately 20 MW each on 32 parcels totaling approximately 2,793 acres. The Project is anticipated to generate 250 MW, but the ultimate energy output is dependent on several variables, including off-take arrangements and the evolving efficiency of PV panels. As a result, the Project could generate more or less than 250 MW, but shall not exceed 2,793 acres of disturbance area during on or off-site construction. Figures 1 and 2 locate the Project regionally and locally, respectively, as well as define the 17 CUP areas.

The Project will use PV technology to convert sunlight directly into direct current (DC) electricity. The Project may include only one PV technology or a combination of various PV technologies, including crystalline silicon-based systems, thin-film systems, and concentrating PV systems. Groups of photovoltaic modules (environmentally sealed collections of photovoltaic cells) will be wired together to form a PV array. The DC produced by the array will be collected at inverters (power conversion devices) where the DC is converted to alternating current. The voltage of the electricity is increased by a transformer at each power conversion station to a medium voltage level (typically 34.5 kilovolts [kV]). Medium voltage electric lines (underground and/or overhead) will be used to collect the electricity from each medium voltage transformer and transmit it to the facility substation, where the voltage will be further increased by a high voltage transformer to match the electric grid for export to the point of interconnection.

All CUP areas are anticipated to use the existing generation interconnection (gen-tie) line that extends from the Project site parcels through the Mount Signal Solar Project to the Imperial Solar Energy Center South (ISECS) switchyard. Approximately eight additional poles will be added to the Mount Signal Solar Project segment of the gen-tie to accommodate collocation of the Project's lines with the Mount Signal gen-tie area. The CUP areas are anticipated to use the main Project switchyard; however, each CUP area may independently construct a 230-kV step-up transformer and switchyard. Disconnect switches, fuses, circuit breakers, and other miscellaneous equipment will be installed throughout the system for electrical protection and operations and maintenance (O&M) purposes. In addition to the structures associated with the solar field, such as PV panels, inverters, transformers, PCS enclosures, etc., the Project would include O&M buildings (it is assumed that each CUP area will include a separate O&M building) and a type of energy storage facility that could accommodate a variety of evolving energy storage technologies. The Project may also include additional auxiliary facilities, such as raw water/fire water storage, treated water storage, evaporation ponds, water filtration buildings and equipment, equipment control buildings, energy storage components, septic system(s) and parking. The design and construction of the buildings and solar arrays (panels, etc.) and auxiliary facilities will be consistent with Imperial County building standards.

The Project will include electric line and vehicular crossings of Imperial Irrigation District (IID) facilities and Imperial County facilities as identified in the EIR Project Description, some of which may include infrastructure improvements, such as bridge widening. The Project crossings will not interfere with the purpose of the IID (drains, irrigation canals, electric lines, etc.) or Imperial County facilities (roads, etc.). It is anticipated that electric line crossings would be either overhead or underground, which may include either trenching or horizontal directional drilling to place the electric or water lines under existing IID and county facilities.

1.2 Project Construction Activities

1.2.1 Development Scenarios

The Project entitlements provide the Applicant the flexibility to construct the Project by constructing all 17 CUPs at one time or phases consisting of individual CUPs or smaller groupings of CUPs. Once a CUP is initiated by commencing construction or obtaining its ministerial permits, its term lasts for 30 years. Any of the 17 individual CUPs not initiated within 10 years of approval shall expire. These create several development scenarios described as follows:

The Existing Conditions Scenario refers to the emissions associated with current agricultural and residential land uses on the Project site. Consistent with the definition of baseline conditions pursuant to CEQA, the existing emissions levels could be estimated for the current land uses. The emissions associated with these land uses could then be subtracted from the total Project emissions to estimate the net increase as a result of the Project. However, the emissions associated with existing or baseline conditions were not analyzed, and the total emissions associated with the Project were compared to the thresholds of significance. This represents a more conservative approach to the air quality and GHG analysis.[1]

The Near-Term Scenario refers to the Project's direct and cumulative impacts if the entire Project (all 17 CUPs) were constructed over 18 months starting in the Year 2015, the year that the Applicant anticipates construction could actually begin following project approval, final engineering and financing. Analysis of the Existing Conditions Scenario or earlier construction schedules for the Project could be misleading to the public and decision-makers, since air quality conditions could change and the Project could not feasibly be constructed during that time. Therefore, the Near-Term Scenario is the most accurate predictor of air quality impacts associated with construction of the Project. The Near-Term Scenario also represents a conservative analysis of the air quality impacts because its construction period results in a greater intensity of labor and equipment than other construction scenarios.

The Long-Term Construction Scenario refers to the Project's direct and cumulative impacts if the entire Project (all 17 CUPs) were constructed over 18 months starting in the Year 2024, the last year the Applicant could commence construction if the CUPs are approved in 2014. If construction were to occur in later years, advancements in engine technology, retrofits, and turnover in the equipment fleet are anticipated to result in lower levels of emissions. In addition, mitigation measures that would be effective in mitigating the Near-Term Construction Scenario's impacts to below a level of significance would also be effective in mitigating the Project's impacts under the Long-Term Construction Scenario. Therefore, emissions associated with the Long-Term Construction Scenario would be less than or equal to the Near-Term Construction Scenario. As a result, the Long-Term Construction Scenario is not discussed further in this report.

The Phased Construction Scenario refers to the Project's direct and cumulative impacts if the Project was constructed by individual CUPs from 2015 to 2024. For the purpose of informing the public and decision-makers of a conservative analysis of impacts where the development is constructed in CUP phases, a large CUP area constructed over a 7-month period was analyzed.

1.2.2 Site Preparation

Initial construction activities would include the development of the staging and assembly areas, and the grading of site access roads for initial array installation. Construction staging and material lay-down areas would be distributed across the Project site evenly to allow for efficient distribution of components to different parts of the Project. These lay-down areas would be temporary and would be converted to solar arrays as work was completed in the general area. Temporary facilities would be developed on each site to facilitate the construction process. These facilities may include construction trailers, a temporary septic system or holding tank, parking areas, material receiving/storage areas,

[1] The crop history for the agricultural land on the Project site includes production of alfalfa, wheat, and grass. Sources of agricultural emissions from crop growing and harvesting activities include energy use (e.g., fuel combustion), crop residue burning, and soil management practices (fertilizer and manure applications). The ARB estimates that agricultural emissions were approximately 7percent of the total Statewide GHG emissions in 2011 (ARB 2014). Based on information consistent with ARB reports regarding agricultural activities, including crop and soil management, the analysis assumed that the current agricultural activities would result in a net positive amount of GHG emissions.

water storage ponds or tanks, construction power service, recycling / waste handling areas, and others. These facilities will be located at the construction areas designated on the final site plans.

1.2.3 Facility Components

The Project will use PV technology or a combination of various PV technologies, including crystalline silicon-based systems, thin-film systems, and concentrating PV systems. The technology will be used to convert sunlight into DC electricity. Groups of PV modules will be wired together to form a PV array. Through a system of inverters and transformers, power will be conveyed to the facility substation and ultimately to the Imperial Valley Substation. Disconnect switches, fuses, circuit breakers, and other miscellaneous equipment will be installed throughout the system as well for electrical protection and operations and maintenance purposes.

Each CUP area includes the following facilities:

1. PV solar modules and tracking racking system and foundation;
2. Inverters/transformers/power conversion stations;
3. Pad-mounted transformers (if different from above);
4. Combining switchgear;
5. Communication system (fiber optic or microwave tower);
6. Breakers, buswork, protective relaying, Supervisory Control and Data Acquisition (SCADA), and associated substation equipment;
7. O&M building(s);
8. Back-up emergency generators; and an
9. Energy storage component.

Each of the major components of the Project is described below in more detail.

<u>Photovoltaic Solar Modules and Trackers</u>

The Project will utilize conventional PV modules (either crystalline or thin-film) or CPV modules. The PV modules operate in response to sunlight (i.e., during daylight hours), and operate at peak output when the sunlight is most intense, though they also produce power in low light conditions.

Depending on the selected manufacturer for the PV or CPV modules, the modules will be mounted on fixed-tilt, single or dual-axis tracking structures. CPV modules will be mounted on top of a dual-axis tracker. The mast will either be secured to a foundation below grade or vibratory driven into the ground, in which case the mast will serve as the foundation and the supporting structure. The solar array field will be arranged in groups, called “blocks.” The entire array block will be connected to an inverter and transformer station to convert the current from DC to alternating current (AC) and to step up the voltage to a higher voltage, which is a more efficient for transmitting power to the Project substation.

During normal operation, each substation will “back feed” power to maintain “house” power. This would include O&M buildings, security systems, SCADA, communication systems, and Plant Control Systems, etc. Therefore, much of the electrical equipment will be in some stage of electrical operation 24 hours per day.

Inverters, Pad-mounted Transformers, and Transmission Facilities

At the center of each array, there will be a power conversion station where inverters take the DC power output from the PV modules and convert it to AC power. An adjacent pad-mounted transformer will step the voltage up to a medium voltage level (typically 34.5 kV). The medium voltage outputs from each of the pad-mounted transformers will be collected together in combining switchgear located at discrete locations on the Project site. The medium voltage output from the combining switchgear will be connected to the Project substation where it will then be stepped up to 230 kV for export to the grid. The Project's gen-tie line will colocate with 8minutenergy Renewables' and AES's Mount Signal Solar Project gen-tie line and interconnect to the Imperial Solar Energy Center South switchyard in order to connect to the San Diego Gas & Electric's Imperial Valley Substation. The power may flow to the Imperial Valley Substation via the Drew Road Switchyard or via the La Rosita to Imperial Valley 230-kV circuit.

Substation, Switchyard, and Communication Systems

An on-site substation/switchyard on each of the 17 CUP areas will step-up the voltage from the collection level voltage to 230 kV. Breakers, buswork, protective relaying, SCADA, and associated substation equipment will be constructed as part of each phase as well. The communication system may include above or belowground fiber optic cable or a microwave tower.

O&M Building Complex

Each O&M Building Complex may contain administrative offices, parts storage, a maintenance shop, plant security systems, a site control center, and plant monitoring equipment. A specific design for the building(s) has not been finalized as of the date of this analysis. The building(s) may have exterior lighting on motion sensors and will include fire and security alarms. The building(s) will be located on a graded area with adjacent worker parking, per county building requirements.

The Project may also include additional auxiliary facilities, such as raw water/fire water storage, treated water storage, evaporation ponds, water filtration buildings and equipment, equipment control buildings, and a wastewater/septic system, as the O&M buildings will provide sanitary facilities for employees and visitors.

Energy Storage Component

The Project may incorporate an energy storage component, or if the Project is constructed in phases, each CUP area may have its own energy storage component. The field of energy storage is rapidly advancing, thus, a single technology or provider has not yet been selected for the energy storage component(s) of the Project. The energy storage component of the Project will utilize storage technologies that operate based upon the principles of potential (e.g., pumped storage), chemical (e.g., batteries), mechanical energy (e.g., a flywheel), or any combination thereof. The energy storage component may be centralized and located adjacent to the substation or switchgear, or alternatively, the energy storage component may be distributed throughout the plant adjacent to individual power conversion centers. The energy storage component would be housed in a warehouse-type building, or alternatively, in smaller modular structures, such as cargo shipping containers.

Site Access/Traffic and Circulation

There are many county-maintained roads providing access throughout the Project site. Primary access to the Project site will be via County Highway S30, Lyons Road, Rockwood Road, and State Route 98 (SR-98), as well as other roads in the area. Access to components of the solar field will be controlled through security gates at several entrances. Multiple gate-restricted access points will be used during construction and operation.

Daily trip generation during construction of the Project would primarily include the delivery of construction equipment, vehicles, and materials, as well as construction worker trips. Road crossings over IID canal or other feature may be widened in the unlikely event construction traffic accessing the site required a wider crossing. In addition, parking for Project-related vehicles would be provided on site during construction.

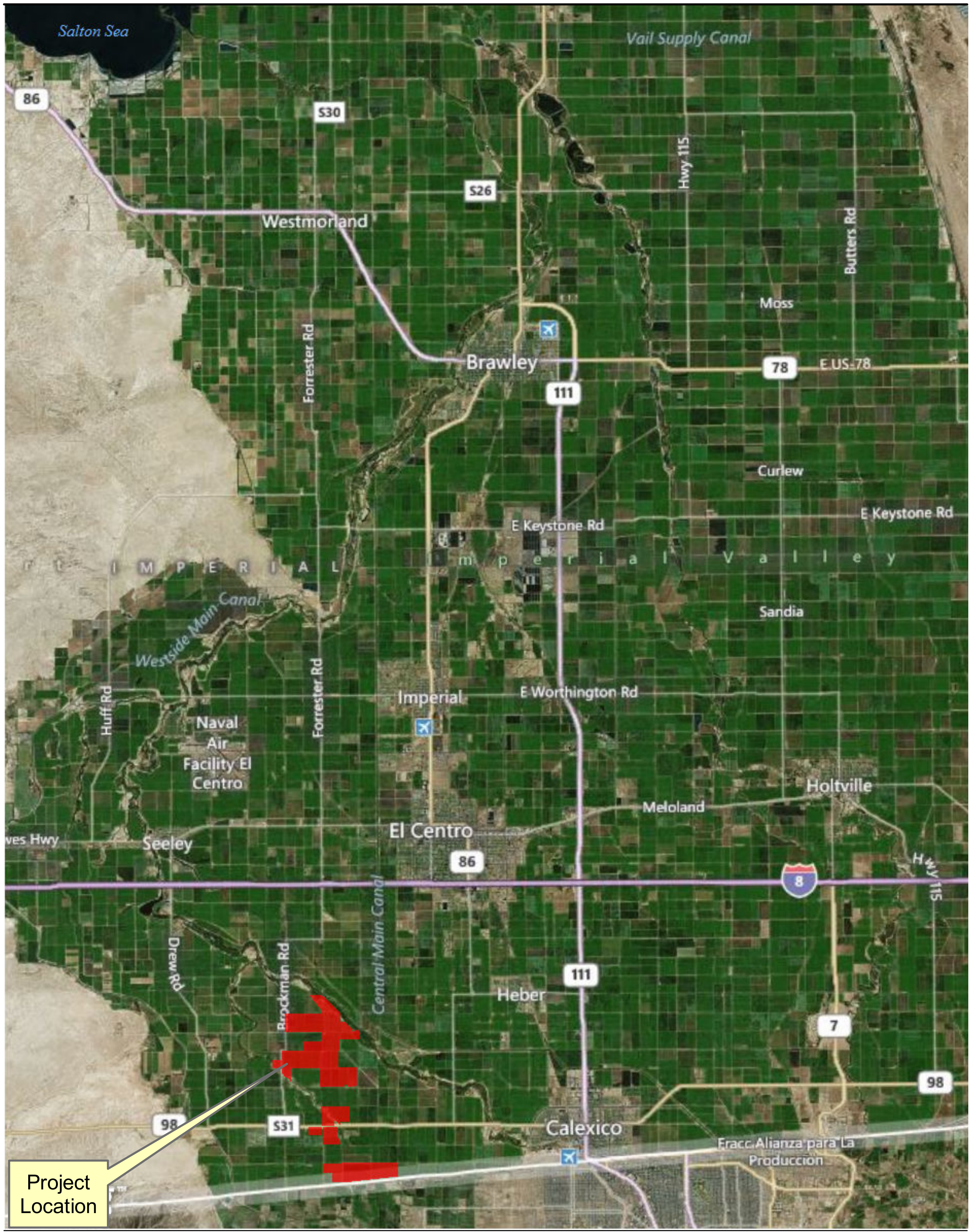
1.3 Project Operations and Maintenance

Once the Project facilities are constructed, facility operation would be limited to general maintenance, panel washing, and security. It is possible that each CUP area could require approximately two full-time equivalent personnel to operate the facility; however, the Project may also be supported by one staff who manages the entire Project. Assuming that all employees would work at their respective sites, operation of 17 CUPs simultaneously would require up to 34 full-time equivalent workers to arrive and leave the Project site on a daily basis. These personnel would perform maintenance, panel washing, and security functions. Panel washing would occur during the dry weather months of April through October. Each solar panel surface would be washed with water from a pickup truck twice during that period to clean the active surface of solar panels to optimize transmission of light and energy production. Security staff would traverse the perimeter of the Project site in a light-duty pickup truck.

Operation of the Project site would be expected to generate approximately 30 trips per day from maintenance and security personnel.

1.4 Project Decommissioning and Site Restoration

Once a CUP is initiated by commencing construction or obtaining its ministerial permits, its term lasts for 30 years. At the end of the Project's term, the facility would be decommissioned. Facility structures and infrastructures would be removed from the Project site, and the Project site would then undergo restoration to the preconstruction agricultural land use. It is estimated that decommissioning activities, which are anticipated to occur prior to 2050, would require approximately one-half of the off-road equipment and on-road vehicle trips as the initial construction period, as fewer workers are needed to perform or inspect the decommissioning work.



Source: ESRI; AECOM; Wistaria 2013; © Harris Corp, Earthstar Geographics LLC © 2013 Microsoft Corporation © 2010 NAVTEQ © AND

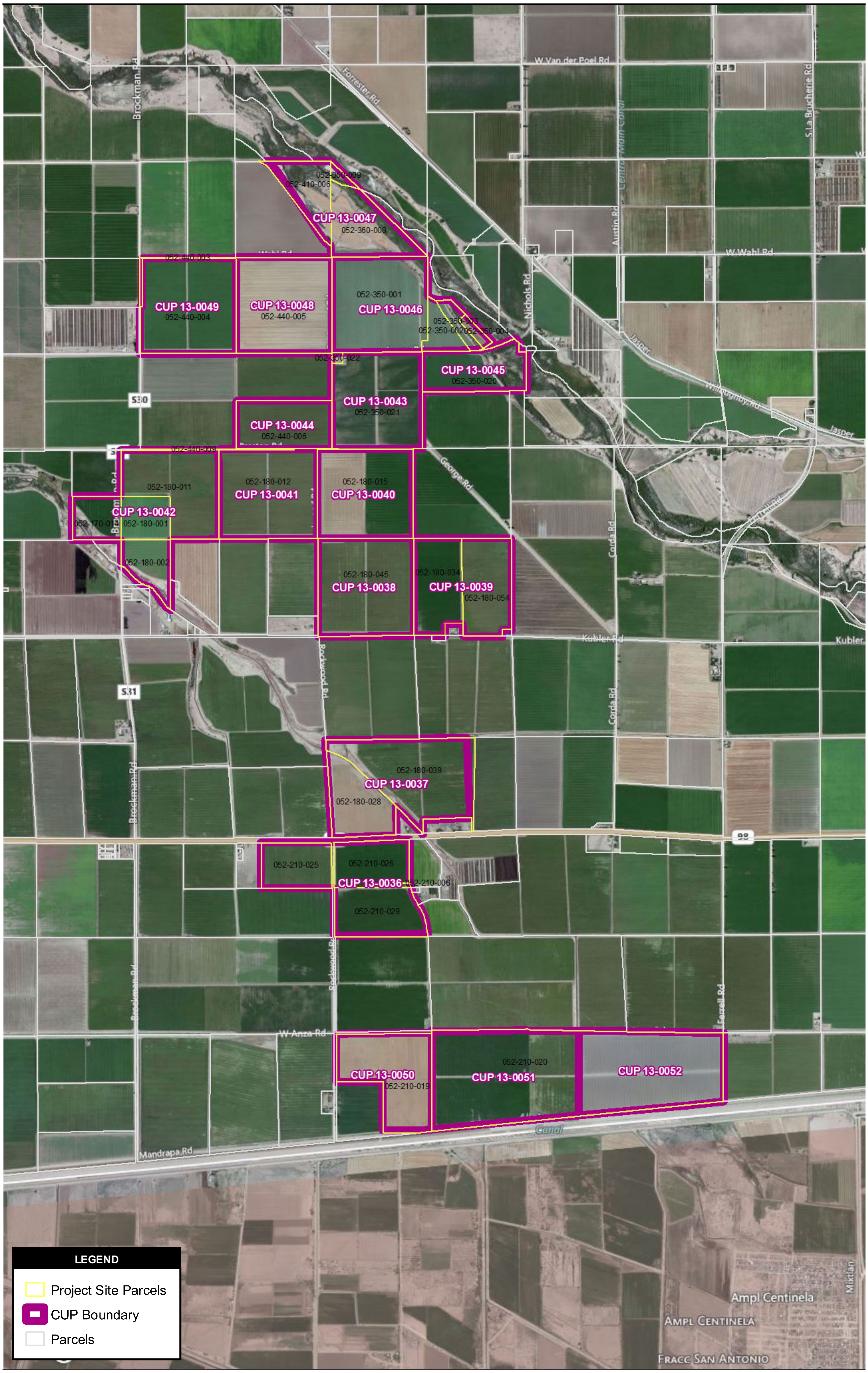
4 2 0 4 Miles

Scale: 1:253,440; 1 inch = 4 miles

Figure 1
Project Location Map

Wistaria Ranch Solar Energy Center

Path: P:\2012\60250473\06GIS\6.3_Layout\Proj_Descr\ProjectLocation.mxd, 7/24/2013, steinb



Source: Image courtesy of USGS © AND © 2012 MapData Sciences Pty Ltd, PSMA © 2012 Zenrin ; ESRI; AECOM; Wistaria 2013

0.5 0.25 0 0.5 Miles

Scale: 1:31,680; 1 inch = 0.5 mile

Figure 2
Project Site and Vicinity Map

2.0 Air Pollutants

"Air pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. The criteria air pollutants that are most important for this analysis are those that can be traced principally to motor vehicles and construction activities. In addition to the criteria pollutants, toxic air contaminants (TACs), asbestos, and GHGs are air pollutants of concern.

2.1 Criteria Air Pollutants

Six air pollutants have been identified by the United States Environmental Protection Agency (EPA) as being of concern nationwide. These are ozone; carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); lead; and particulate matter (PM), which is subdivided into two classes based on particle size: PM equal to or less than 10 microns in diameter (PM_{10}) and PM equal to or less than 2.5 microns in diameter ($PM_{2.5}$). These pollutants are collectively referred to as criteria pollutants and are discussed in detail below and later in this report.

2.1.1 Ozone

Ozone is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x) in the presence of sunlight. ROG and NO_x are called precursors of ozone. NO_x includes various combinations of nitrogen and oxygen, including nitric oxide (NO), NO_2, and others. Ozone is a principal cause of lung and eye irritation in the urban environment. Significant ozone concentrations are usually produced only in the summer, when atmospheric inversions are greatest and temperatures are high. ROG and NO_x emissions are both considered critical in ozone formation.

2.1.2 Carbon Monoxide

CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels, called "hot spots," which can be hazardous to human receptors adjacent to the intersections.

2.1.3 Nitrogen Dioxide

NO_2 is a product of combustion and is generated in vehicles and in stationary sources, such as power plants and boilers. It is also formed when ozone reacts with NO in the atmosphere. NO_2 can cause lung damage. As noted above, NO_2 is part of the NO_x family and is a principal contributor to ozone and smog generation.

2.1.4 Sulfur Dioxide

SO_2 is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The health effects of SO_2 include lung disease and breathing problems for asthmatics. SO_2 in the atmosphere contributes to the formation of acid rain.

2.1.5 Lead

Lead is a highly toxic metal that may cause a range of human health effects. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. The EPA began working to reduce lead emissions soon after its inception, issuing the first reduction standards in 1973. Lead emissions have significantly decreased due to the near elimination of leaded gasoline use.

2.1.6 Particulate Matter

PM is a complex mixture of extremely small particles and liquid droplets. PM is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Natural sources of particulate matter include windblown dust and ocean spray.

The size of PM is directly linked to the potential for causing health problems. The EPA is concerned about particles that are 10 micrometers in diameter or smaller, because these particles generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Health studies have shown a significant association between exposure to PM and premature death. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems, such as heart attacks and irregular heartbeat (EPA 2007). Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children. In addition to total PM, the EPA groups PM into the following categories:

Fine Particulate Matter ($PM_{2.5}$)

Fine particles, such as those found in smoke and haze, are $PM_{2.5}$. Sources of fine particles include all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. $PM_{2.5}$ is also formed through reactions of gases, such as SO_2 and NO_x, in the atmosphere. $PM_{2.5}$ is the major cause of reduced visibility (haze) in California.

Inhalable Particulate Matter (PM_{10})

PM_{10} includes both fine and coarse particles; the fine particles are $PM_{2.5}$. Coarse particles, such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter. Sources of coarse particles include crushing or grinding operations and dust from paved or unpaved roads. The health effects of PM_{10} are similar to $PM_{2.5}$. Control of PM_{10} is primarily achieved through the control of dust at construction and industrial sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

2.2 Toxic Air Contaminants

The EPA regulates TACs, also known as hazardous air pollutants. Concentrations of TACs are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in ambient air; however, their high toxicity may pose a threat to public health even at low concentrations. Most TACs originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes and construction equipment), area sources (e.g., dry cleaners), and stationary sources (e.g., factories and refineries).

2.3 Asbestos

The Clean Air Act (CAA) of 1970 requires the EPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health. Asbestos is a known carcinogen and inhalation of asbestos may result in the development of lung cancer or mesothelioma. The Project does not include construction activities that would involve asbestos.

2.3.1 Naturally Occurring Asbestos bearing Serpentine

Serpentine is a mineral commonly found in seismically active regions of California, usually in association with ultramafic rocks and along associated faults. Certain types of serpentine occur naturally in a fibrous form known generically as asbestos. According to the report *A General Location Guide for Ultramafic Rocks in California Area Likely to Contain Naturally Occurring Asbestos* (CDC 2000), the naturally occurring asbestos-bearing serpentine is not typically found in the geological formations present on the Project site (CDC 2000).

2.4 Greenhouse Gases

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back towards space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the earth's atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is, at certain GHG concentrations, responsible for maintaining a habitable climate on the earth.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals and plants, decomposition of organic matter, and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels, waste treatment, and agricultural processes. The following are GHGs that are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexaflouride (SF_6)

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere (“atmospheric lifetime”). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of one. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310 (UNFCC 2012). For example, 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 21 tons of CO_2. GHGs with lower emissions rates than CO_2 may still contribute to climate change, because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). The concept of CO_2-equivalents (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

GHG emissions related to human activities have been determined to be likely responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth’s atmosphere and oceans, with corresponding effects on global circulation patterns and climate (IPCC 2007). Similarly, impacts of GHGs are borne globally, as opposed to the more localized air quality effects of criteria air pollutants and TACs. No single project alone is expected to measurably contribute to a noticeable incremental change in the global average temperature, or to a global, local, or micro climate. From the standpoint of the California Environmental Quality Act (CEQA), GHG impacts to global climate change are inherently cumulative.

3.0 Regulatory Setting

3.1 Air Quality Regulations

3.1.1 Federal Regulations

The CAA (42 U.S. Code Sections 7401-7671) requires the adoption of national ambient air quality standards (NAAQS) to protect the public health and welfare from the effects of air pollution. The EPA established primary and secondary NAAQS that specify allowable ambient concentrations for criteria pollutants. Primary NAAQS are established at levels necessary, with an adequate margin of safety, to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Similarly, secondary NAAQS specify the levels of air quality determined appropriate to protect the public welfare from any known or anticipated adverse effects associated with air contaminants. Current standards are set for ozone, NO_2, CO, PM_{10}, $PM_{2.5}$, SO_2, and lead. The California Air Resources Board (ARB) established California ambient air quality standards (CAAQS) that are, in general, more restrictive than the NAAQS. Federal and State standards are shown in Table 1.

Table 1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a]	National Standards [b]	
		Concentration [c]	Primary [c,d]	Secondary [c,e]
Ozone	1 hour	0.09 ppm (180 µg/m³)		Same as primary standard
	8 hours	0.070 ppm (137 µg/m³)	0.075 ppm (147 µg/m³)	
Respirable particulate matter (PM_{10}) [f]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	–	
Fine particulate matter ($PM_{2.5}$) [f]	24 hours	–	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	12 µg/m³	15 µg/m³
Carbon monoxide	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	None
	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	
	8 hours (Lake Tahoe)	6 ppm (7 mg/m³)	–	–
Nitrogen dioxide [g]	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as primary standard
	1 hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	None
Sulfur dioxide [h]	Annual arithmetic mean	–	0.030 ppm (for certain areas) [h]	–
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas) [h]	–
	3 hours	—	–	0.5 ppm (1,300 µg/m³)
	1 hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–

Table 1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a]	National Standards [b]	
		Concentration [c]	Primary [c,d]	Secondary [c,e]
Lead [i,j]	30-day average	1.5 $\mu g/m^3$	–	–
	Calendar quarter	–	1.5 $\mu g/m^3$ (for certain areas) [j]	Same as primary standard
	Rolling 3-month average	–	0.15 $\mu g/m^3$	
Visibility-reducing particles [k]	8 hours	See footnote j	No national standards	
Sulfates	24 hours	25 $\mu g/m^3$		
Hydrogen sulfide	1 hour	0.03 ppm (42 $\mu g/m^3$)		
Vinyl chloride [i]	24 hours	0.01 ppm (26 $\mu g/m^3$)		

Notes: mg/m^3 = milligrams per cubic meter; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppb = parts per billion; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standards. Contact EPA for further clarification and current national policies.

[c] Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[g] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical of 0.075 ppm.

[i] The California Air Resources Board (ARB) has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[j] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[k] In 1989, ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and the "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: ARB 2013a

The EPA, under the provisions of the CAA, requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the Federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The SIP is not a single document, but a compilation of new and previously submitted attainment plans, emissions reduction programs, district rules, state regulations, and Federal controls. The ARB is the lead agency for developing the SIP in California. Local air districts and other agencies prepare Air Quality Attainment Plans (AQAPs), or Air Quality Management Plans (AQMPs), and submit them to the ARB for review, approval, and incorporation into the applicable SIP.

General Conformity

General conformity requirements were adopted by the U.S. Congress as part of the CAA Amendments of 1990 and were implemented by EPA regulations in 1993. The purpose of the general conformity program is to ensure that actions taken by the Federal government do not undermine state or local efforts to achieve and maintain NAAQS. The General Conformity Rule applies to "any activity that a department…of the Federal government supports in any way, provides financial assistance for, licenses, permits, or approves" (40 Code of Federal Regulations Section 51.852).

The General Conformity Rule (40 Code of Federal Regulations Sections 51.850–51.860 and 93.150–93.160) requires any Federal agency responsible for an action in a Federal nonattainment or attainment/maintenance area to demonstrate conformity to the applicable SIP. To do so, the Federal agency must determine that the action is either exempt from General Conformity Rule requirements or subject to a formal conformity determination. All reasonably foreseeable emissions predicted to result from the action—both direct and indirect—must be considered, and the location and quantity of emissions must be identified. Only Federal nonattainment and maintenance pollutant emissions are considered under a general conformity analysis.

3.1.2 State Regulations

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

The California CAA requires that each area exceeding the CAAQS for ozone, CO, SO_2, and NO_2 develop a plan aimed at achieving those standards (California Health and Safety Code, 40911 et seq.). 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 percent or more, averaged every consecutive 3-year period. To satisfy this requirement, the Air Quality Management Districts and Air Pollution Control Districts have to develop and implement air pollution reduction measures, which are described in their AQAPs/AQMPs, and outline strategies for achieving the CAAQS for any criteria pollutants for which the region is classified as nonattainment.

ARB has established emission standards for vehicles sold in California and for various types of equipment. California gasoline specifications are governed by both State and Federal agencies. During the past decade, Federal and State agencies have imposed numerous requirements on the production and sale of gasoline in California. ARB has also adopted control measures for diesel PM and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. The Air Toxics Hot Spots Information and Assessment Act requires that TAC emissions from individual stationary sources be quantified and compiled into an inventory according to criteria and guidelines developed by the ARB, and if directed to do so by the local air district, a health risk assessment must be prepared to determine the potential health impacts of such emissions.

3.1.3 Regional and Local Air Quality Regulations

In Imperial County, the Imperial County Air Pollution Control District (ICAPCD) is the agency responsible for protecting the public health and welfare through the administration of Federal and State air quality laws and policies. The ICAPCD develops air quality plans that address State and Federal requirements. The air quality plans include strategies and tactics to be used to attain and maintain acceptable air quality in Imperial County. The ICAPCD is also responsible for monitoring air pollution and adopting rules and regulations. The rules and regulations include procedures and requirements to control the emission of pollutants and prevent significant adverse impacts.

ICAPCD Air Quality Plans

In order to demonstrate attainment of the Federal NAAQS, the ICAPCD adopted an 8-hour Ozone AQMP, which was approved by the ICAPCD in 2009. In 2009, the ICAPCD also developed and adopted a PM_{10} SIP to demonstrate attainment of the PM_{10} standard.

Ozone Air Quality Management Plan

As a result of the new ozone standards adopted by the EPA in 1997, strategies to decrease higher ozone concentrations were required. In response, the ICAPCD adopted the 8-hour Ozone AQMP in 2008. Subsequently, the ICAPCD requested further modifications to the AQMP. The final 2009 8-Hour Ozone Modified AQMP was adopted by the ICAPCD on July 13, 2010 (ICAPCD 2010).

The AQMP includes control measures, which are an integral part of how the ICAPCD currently controls the ROG and NO_x emissions within the nonattainment area. The AQMP control measures include ICAPCD stationary source control measures, regional transportation control measures, and the State strategy. Stationary source control measures include equipment and techniques that reduce air pollutant emissions from stationary sources, such as point sources (permitted facilities) and area sources (generally small and non-permitted). Transportation control measures are both regional and local. Regional measures are consistent with the Regional Transportation Plan (RTP) adopted by the Southern California Association of Governments. ARB adopted the State Strategy for California's 2007 SIP to achieve the additional emission reductions needed for all areas of the State, including Imperial County. The State Strategy includes control measures related to passenger vehicles, trucks, construction equipment, agricultural equipment, goods movement, fuels, recreational vehicles and boats, and pesticides.

The local strategy of the ICAPCD is to rely on the reductions of vehicle miles traveled associated with the implementation of the Imperial County CEQA Air Quality Handbook (November 2007) (CEQA Handbook). The CEQA Handbook provides guidance to all interested parties on the significance of impacts resulting from the development of new residential, commercial, and industrial projects. Once the significance of the impact is determined, the CEQA Handbook provides a list of feasible mitigation measures that may be implemented to achieve a reduction of those direct and indirect emissions created by the development project. Specifically, the CEQA Handbook requires mitigation of construction and operational air emissions.

PM_{10} State Implementation Plan

The final PM_{10} SIP was adopted by the ICAPCD on August 11, 2009 (ICAPCD 2009). The PM_{10} SIP was required to address and include the following elements, required under the Federal CAA of areas classified to be in serious nonattainment of the NAAQS:

- Emission inventories;
- Attainment of the Federal PM_{10} NAAQS;
- Annual reductions in PM_{10} or PM_{10} precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment;
- Best available control measures (BACM) and best available control technologies for significant sources and major stationary sources of PM_{10}, to be implemented no later than 4 years after reclassification of the area as serious;
- Transportation conformity and motor vehicle emission budgets in accordance with the attainment plan;
- Reasonable further progress and quantitative milestones; and
- Contingency measures to be implemented in the event that the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

The PM_{10} nonattainment status required the ICAPCD to begin the development of revised dust control rules at the BACM level. This process began prior to the development of the SIP. In November 2005, the ICAPCD adopted revised fugitive dust control measures (Regulation VIII), which are the primary control strategy for the PM_{10} SIP.

ICAPCD Rules and Regulations

The ICAPCD attains and maintains air quality conditions in Imperial County through a comprehensive program of planning, regulation, enforcement, and promotion of the understanding of air quality issues. ICAPCD regulations are primarily focused on stationary sources, indirect sources, and BACM to minimize air pollutants within their jurisdiction. Portable engines used during construction or operations that are larger than 50 horsepower (hp) would need to obtain air operating permits from ICAPCD. The Project is required to comply with all ICAPCD rules, and conformance will be incorporated into Project specifications and procedures. In addition to developing rules and requirements to address emissions, the ICAPCD also adopted guidance policy #5, which helps lead agencies and other interested parties evaluate off-site mitigation from mobile sources attracted to stationary sources.

The ICAPCD has established Regulation VIII to prevent, reduce, or mitigate the fugitive dust emissions. The specific rules applicable to the Project include:

- Rule 800 General Requirements for Control of Fine Particulate Matter,

- Rule 801 Construction and Earthmoving Activities,
- Rule 802 Bulk Materials,
- Rule 803 Carry-Out and Track-Out,
- Rule 804 Open Areas, and
- Rule 805 Paved and Unpaved Roads.

Compliance with Regulation VIII is mandatory on all construction sites, regardless of the size of the project.

3.2 Climate Change Regulations

3.2.1 Federal Regulations

The EPA is the Federal agency responsible for implementing the Federal CAA. On April 2, 2007, in Massachusetts v. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the CAA and that the EPA has the authority to regulate GHGs. The Court held that the EPA Administrator must determine (1) whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or (2) whether the science is too uncertain to make a reasoned decision. The EPA Administrator issued these findings in 2009, which are discussed in greater detail, below.

Mandatory GHG Reporting Rule

On October 30, 2009, the EPA published the final version of the Mandatory GHG Reporting Rule in the Federal Register. In general, this national reporting requirement provides the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO_2 per year. Subsequent rulings have expanded the emissions sources required to report emissions data, and now include oil and natural gas industries, industrial wastewater treatment, and landfills. Certain categories, such as general stationary fuel combustion sources and electricity generation, began reporting their yearly emissions with the 2010 reporting year. The 2010 emissions were reported to EPA in September 2011. Additional sources, such as the manufacture and use of electric transmission and distribution equipment, began reporting 2011 emissions in September 2012. There are now a total of 41 source categories reporting emissions as a result of the Mandatory GHG Reporting Rule (EPA 2013). An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

GHG Findings under the Federal CAA

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- Endangerment Finding: The EPA Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The EPA Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industries or other entities, this action was a prerequisite to finalizing the EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* were published in the Federal Register. The emissions standards will require model year 2016 vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, which is equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements.

On August 28, 2012, the U.S. Department of Transportation (USDOT) and the EPA issued a joint Final Rulemaking requiring additional Federal GHG and fuel economy standards for model year 2017 through 2025 passenger cars and light-duty trucks. The standards would require these vehicles to meet an estimated combined average emissions level of 163 grams of CO_2 per mile in model year 2025, which is equivalent to 54.5 miles per gallon if the improvements were made solely through fuel efficiency. In addition to the standards for light-duty vehicles, the USDOT and the EPA announced standards to reduce GHG emissions and improve the fuel efficiency of heavy-duty trucks and buses on August 9, 2011.

3.2.2 State Regulations

With the passage of several pieces of legislation, including State Senate Bills (SBs) and ABs and Executive Orders, California launched an innovative and proactive approach to addressing GHG emissions and climate change at the State level.

Assembly Bill 1493 (Pavley)

AB 1493 requires ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with model year 2009. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies worked with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 to 2025.

Executive Order S-3-05

The goal of this Executive Order, signed on June 1, 2005, by Governor Arnold Schwarzenegger, is to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020 and (3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32.

Assembly Bill 32

AB 32, the Global Warming Solutions Act of 2006, sets the same overall GHG emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs State agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Executive Order S-01-07

Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 1078, Senate Bill 107, and Senate Bill X1-2

SB 1078 (CEC 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 changed the target date to 2010. Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. This new goal was codified in 2011 with the passage of SB X1-2. To meet the goals set out in SB X1-2, a significant effort will be needed to reduce overall energy used in the State through energy efficiency efforts and a large effort to increase the amount of renewable energy generated and purchased by utility companies.

Senate Bill 97 (Chapter 185, 2007)

SB 97 required the Governor's Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The Amendments became effective on March 18, 2010.

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or an Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's RTP. On September 23, 2010, ARB adopted regional GHG targets for passenger vehicles and light trucks for 2020 and 2035 for the 18 MPOs in California. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation cycle from 5 years to 8 years for local governments located within an MPO that meet certain requirements. City or county land use policies (including general plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of the CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

3.2.3 Regional and Local Regulations

The ARB's Scoping Plan states that local governments are "essential partners" in the effort to reduce GHG emissions (ARB 2008). The Scoping Plan also acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce GHG emissions rely on local government actions.

ICAPCD Rule 903 applies to any stationary source that would have the potential to emit air contaminants equal to or in excess of the threshold for a major source of regulated air pollutants. In 2011, ICAPCD amended Rule 903 to add GHGs to the list of regulated pollutants. As part of the revised rule, stationary sources that do not exceed the de minimis emissions level of 20,000 tons CO_2e per year in a 12-month period would not need to meet recordkeeping and reporting requirements. The ICAPCD has no regulations or additional guidelines relative to GHG emissions for residential, commercial, or industrial projects.

4.0 Existing Conditions

4.1 Environmental Setting, Climate, and Meteorology

The Project is located in the Salton Sea Air Basin (SSAB). The SSAB consists of the western portion of Riverside County known as the Coachella Valley and all of Imperial County. Imperial County is located in the southeastern corner of California and is surrounded by mountain ranges to the north and east, with vast open land containing desert sand. It is bordered by Riverside County to the north, Mexico to the south, San Diego County to the west, and Arizona to the east. Imperial County is a desert community with a warm, dry climate. Summers are extremely hot and dry while winters are temperate. The high temperatures, combined with low humidity, produce hot, dry summers that contribute to the buildup of ozone.

Rainfall at the El Centro Station in Imperial County, which is the closest climate monitoring station to the Project site and represents the Project's area, climate, and topography in the SSAB, averages approximately 2.64 inches annually (WRCC 2013). The heaviest precipitation occurs in January through March. The mean annual air temperature ranges from 55 degrees Fahrenheit (°F) in January to 92°F in July, with an annual average temperature of approximately 73°F (WRCC 2013).

Air quality within the SSAB is affected by air pollutants transported from the South Coast Air Basin to the northwest and from Mexico to the south. Similarly, wind blowing in a northeast direction transports pollutants from Mexicali into Calexico.

4.2 Regional and Local Air Quality

Specific geographic areas are classified as either "attainment," "nonattainment," or "unclassified" areas for each pollutant, based on the comparison of measured data with Federal and State standards. The "unclassified" designation is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. The Project area in the SSAB is currently designated as a moderate nonattainment area for 8-hour ozone and a serious nonattainment area for PM_{10}. The portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland is designated a nonattainment area for the NAAQS for $PM_{2.5}$. The Project area in the SSAB is in attainment with the NAAQS for the other applicable criteria pollutants. Table 2 shows the Federal and State attainment status for the SSAB.

Table 2 SSAB Attainment Status

Criteria Pollutant	State Designation	Federal Designation
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Serious – Nonattainment	Serious – Nonattainment
$PM_{2.5}$	Unclassified	Nonattainment
Ozone (8-hour)	Moderate – Nonattainment	Moderate – Nonattainment
Lead	Attainment	Unclassified/Attainment
Sulfates	Attainment	Not Applicable
H_2S	Unclassified	Not Applicable
Visibility Reducing PM	Unclassified	Not Applicable

Source: ARB 2013b

Ambient air pollutant concentrations in the SSAB are measured at air quality monitoring stations operated by the ARB and the ICAPCD. The El Centro station monitors ozone, CO, NO_2, PM_{10}, and $PM_{2.5}$. Table 3 summarizes the exceedances of the NAAQS and CAAQS and the highest pollutant levels recorded at this station from 2010 through 2012. As shown in Table 3, ambient air concentrations of CO and NO_2 at the El Centro monitoring station have not exceeded the NAAQS or the CAAQS in the past 3 years. Ozone concentrations have exceeded the NAAQS and CAAQS every year. Concentrations of PM_{10} and $PM_{2.5}$ have exceeded the CAAQS and NAAQS at least once in the past 3 years.

Table 3 Ambient Air Quality Summary for the El Centro Monitoring Station

Pollutant Standards	2010	2011	2012
Carbon Monoxide			
Maximum 8-hour concentration (ppm)	5.61	9.01	3.64
Number of days standard exceeded			
NAAQS 8-hour ($\geq$9 ppm)	0	0	0
CAAQS 8-hour ($\geq$9.0 ppm)	0	0	0
Nitrogen Dioxide			
Maximum 1-hour concentration (ppm)	0.141	0.117	0.059
Annual average (ppm)	0.004	0.009	*
Number of days standard exceeded			
NAAQS 1-hour	0	0	0
CAAQS 1-hour	0	0	0

Table 3 Ambient Air Quality Summary for the El Centro Monitoring Station

Pollutant Standards	2010	2011	2012
Ozone			
Maximum 1-hour concentration (ppm)	0.122	0.103	0.111
Maximum 8-hour concentration (ppm)	0.082	0.084	0.091
Number of days standard exceeded			
CAAQS 1-hour (>0.09 ppm)	3	5	9
CAAQS 8-hour (>0.070 ppm)	29	21	26
NAAQS 8-hour (>0.075 ppm)	10	12	14
Particulate Matter (PM_{10})[a]			
National maximum 24-hour concentration ($\mu g/m^3$)	69.4	81.9	75.6
State maximum 24-hour concentration ($\mu g/m^3$)	70.2	80.3	72.1
National annual average concentration ($\mu g/m^3$)	32.9	32.6	33.4
State annual average concentration ($\mu g/m^3$)	*	*	33.5
Number of days standard exceeded			
NAAQS 24-hour (>150 $\mu g/m^3$)	0	0	0
CAAQS 24-hour (>50 $\mu g/m^3$)	*	*	6
Particulate Matter ($PM_{2.5}$)[a]			
National maximum 24-hour concentration ($\mu g/m^3$)	19.9	54.4	26.4
State maximum 24-hour concentration ($\mu g/m^3$)	19.9	54.4	26.4
National annual average concentration ($\mu g/m^3$)	6.5	7.5	7.5
State annual average concentration ($\mu g/m^3$)	6.6	7.5	*
Number of days standard exceeded			
NAAQS 24-hour (>35 $\mu g/m^3$)	0	2	0

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

[a] State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using Federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions, while national statistics are based on standard conditions. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

* Insufficient or no available data available.

Source: ARB 2013c

4.3 GHG Emission Sources

GHG emissions contributing to global climate change are attributable in large part to human activities Emissions of CO_2 are byproducts of fossil fuel combustion, and CH_4, a highly potent GHG, is the primary component in natural gas and is associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management.

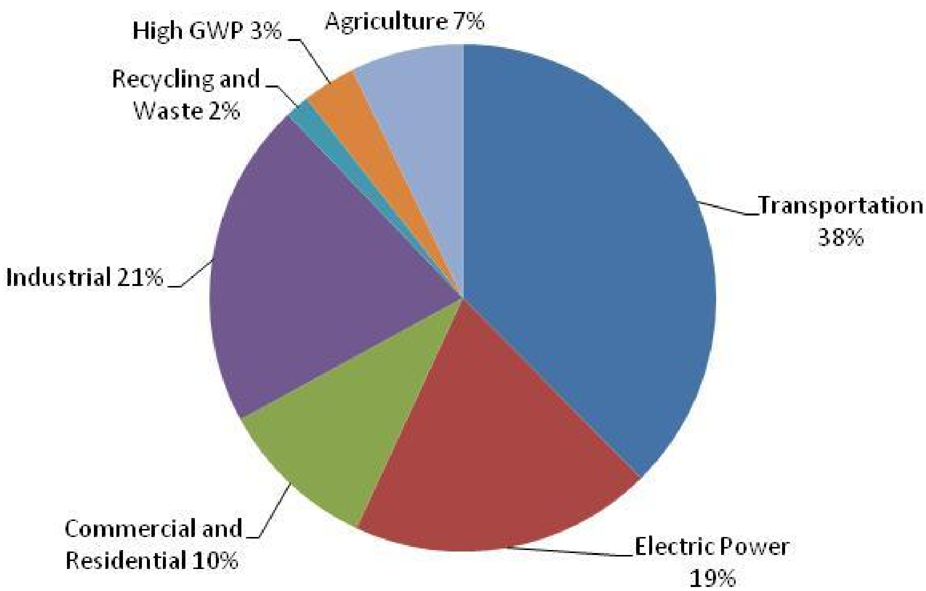
For purposes of accounting for and regulating GHG emissions, sources of GHG emissions are grouped into emission categories. The ARB identifies the following categories, which account for most anthropogenic GHG emissions generated within California:

- Transportation: On-road motor vehicles, recreational vehicles, aviation, ships, and rail.
- Electric Power: Use and production of electrical energy.
- Industrial: Mainly stationary sources (e.g., boilers and engines) associated with process emissions.
- Commercial and Residential: Area sources, such as landscape maintenance equipment, fireplaces, and consumption of natural gas for space and water heating.
- Agriculture: Agricultural sources that include off-road farm equipment; irrigation pumps; crop residue burning (CO_2); and emissions from flooded soils, livestock waste, crop residue decomposition, and fertilizer volatilization (CH_4 and N_2O).
- High GWP: Refrigerants for stationary and mobile source air conditioning and refrigeration, electrical insulation (e.g., SF_6), and various consumer products that use pressurized containers.
- Recycling and Waste: Waste management facilities and landfills; primary emissions are CO_2 from combustion and CH_4 from landfills and wastewater treatment.

4.4 State Greenhouse Gas Emissions Inventory

ARB performs an annual GHG inventory for emissions and sinks of the six major GHGs. As shown in Figure 3, California produced 448.1 million metric tons of CO_2e in 2011 (ARB 2014). Combustion of fossil fuel in the transportation category was the single largest source of California's GHG emissions in 2011, accounting for 38 percent of total GHG emissions in the State. The transportation category was followed by the industrial category, which accounts for 21 percent of total GHG emissions in the State, and electric power (including in- and out-of-state sources), which accounts for 19 percent of total GHG emissions in the State (ARB 2014).

Figure 3 2011 California GHG Emissions by Category



5.0 Thresholds of Significance, Impacts, and Mitigation Measures

5.1 Thresholds of Significance

Pursuant to CEQA, the analysis of air quality impacts associated with the implementation of the Project and the determination of impact significance were based on the following questions:

- Would the Project conflict with or obstruct implementation of the applicable air quality plan?
- Would the Project violate any air quality standards or contribute substantially to an existing or projected air quality violation?
- Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is classified as nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Would the Project expose sensitive receptors to substantial pollutant concentrations?
- Would the Project create objectionable odors that would affect a substantial amount of people?

Air pollutants would be generated during construction activities. The ICAPCD recognizes the temporary, short-term increase of air pollutants during construction activities and recommends the implementation of effective and comprehensive mitigation measures to reduce air quality impacts. In addition to the CEQA thresholds identified above, Table 4 indicates the ICAPCD's significance thresholds for construction activities.

Table 4 ICAPCD Significance Thresholds for Construction Activities

Pollutant	Thresholds (lbs/day)
PM_{10}	150 lbs/day
ROG	75 lbs/day
NO_X	100 lbs/day
CO	550 lbs/day

lbs/day = pounds per day

The ICAPCD also provides pollutant significance thresholds for operational or long-term air pollutant emissions. Projects with the potential to generate emissions exceeding the thresholds would have a significant impact on air quality. If the Project's impact exceeds any of the significance criteria, various mitigation measures are available, depending on the nature of the air quality impact. Any proposed residential, commercial, or industrial development with a potential to emit less than the thresholds in Table 5 would be considered a Tier I project and may potentially have an adverse impact on local air quality. However, an Initial Study would be required to help the Lead Agency determine whether the project would have a less than significant impact. Any project with the potential to meet or exceed the

Tier II thresholds is considered to have a significant impact on regional and local air quality, and the project is required to develop a Comprehensive Air Quality Analysis Report. Tier II projects are also required to implement all standard mitigation measures as well as all feasible discretionary mitigation measures. Table 5 presents the ICAPCD's significance thresholds for criteria pollutants during operational activities.

Table 5 ICAPCD Significance Thresholds for Operational Activities

Pollutant	Tier I (lb/day)	Tier II (lb/day)
NO_x and ROG	Less than 55 lbs/day	55 lbs/day and greater
PM_{10} and SO_x	Less than 150 lbs/day	150 lbs/day and greater
CO	Less than 550 lbs/day	550 lbs/day and greater
Level of Significance	Less Than Significant	Significant Impact
Level of Analysis	Initial Study	Comprehensive Air Quality Analysis Report
Environmental Document	Negative Declaration	Mitigated Negative Declaration or Environmental Impact Report

lbs/day = pounds per day

The CEQA Handbook does not include thresholds of significance for cancer and non-cancer health risks associated with construction of the Project. However, the Air Toxics Hot Spots Information and Assessment Act (AB 2588) requires each air district, including ICAPCD, to establish the notification threshold at which facilities are required to notify all exposed persons. Consistent with the AB 2588 levels established by the ICAPCD, the recommended thresholds of significance for this analysis are (1) no greater than 10 in one million for cancer risks, and (2) a hazard index of less than 1.0 for non-cancer risks.

For this analysis and pursuant to the CEQA, the Project's GHG emissions and its incremental contribution to global climate change would be considered significant if it would:

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

The ICAPCD has not established quantitative significance thresholds for the evaluation of GHG emissions for CEQA analysis; instead, each project is evaluated on a case-by-case basis using the most up-to-date calculation and analysis methods. Therefore, to establish additional context in which to consider the order of magnitude of the Project's construction-, operational-, and decommissioning-related GHG emissions, this analysis reviewed the following guidelines on the levels of GHG emissions other experts and public agencies have used to evaluate whether or not a project's GHG emissions constitute a cumulatively considerable incremental contribution to climate change in order to determine which one is most applicable to the Project:

- The County of San Diego has established a threshold of 2,500 MT CO_2e per year as a project-level GHG significance threshold that would apply to operational and construction emissions from land use development projects (San Diego County 2012).
- The South Coast Air Quality Management District (SCAQMD) has adopted a significance threshold for GHG emissions of 10,000 MT CO_2e per year where SCAQMD is the lead agency for an industrial project (SCAQMD 2008).
- The SCAQMD GHG Working Group has proposed a significance screening level of 3,000 MT CO_2 per year for residential and commercial projects (SCAQMD 2010).

In the absence of ICAPCD thresholds, the evaluation is based on known standards adopted by agencies representing areas that are geographically proximate to the Project site. Since the Project is primarily industrial and does not involve residential or commercial land uses, the SCAQMD-adopted threshold of 10,000 MT CO_2e per year is considered the appropriate screening threshold for this analysis.

Many California air districts, including SCAQMD, also recommend that construction emissions associated with a project be amortized over the life of the project (typically 30 years) and added to the operational emissions. Therefore, modeled construction-related GHG emissions associated with the Project are discussed first, then operational GHG emissions are totaled and the amortized construction emissions are added to the operational emissions.

As mentioned earlier, decommissioning would result in emissions that are less than construction for the Project and CUP areas, because the traffic and off-road equipment use would be approximately one-half of the amount used during construction. In addition, advancements in engine technology, retrofits, and turnover in the equipment fleet would result in lower levels of emissions than the estimates presented in this report. Similar to the approach for construction emissions, the GHG emissions associated with decommissioning were amortized and added to the operational emissions to provide a more accurate estimate of the total GHG emissions.

As mentioned earlier, the entire Project may be constructed over 18 months, or it may be built based on up to 17 different CUP areas over an approximate 10-year period. Therefore, it is not known exactly when each CUP area will be developed within this 10-year period. The analysis provides details of construction and operation of the entire Project, as well as a discussion of impacts associated with construction and operation of a typical CUP area. The typical CUP area was determined to be CUP 13-0037, based on the proposed energy generation (22 MW), total acreage (224 acres), and the location relative to sensitive receptors. While this is considered to be the typical CUP area, the combination of characteristics for that CUP area also represents a conservative approach to the analysis. Both the overall Project and CUP area analyses are discussed in the potential impacts in Section 5.2.

5.2 Project Impacts

Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Project-Level Analysis (Near-Term Scenario)

Air quality plans describe air pollution control strategies and measures to be implemented by a city, county, region, and/or air district. The primary purpose of an air quality plan is to bring an area that does not attain Federal and State air quality standards into compliance with the requirements of the Federal CAA and California CAA. In addition, air quality plans are also developed to ensure that an area maintains a healthful level of air quality based on the NAAQS and the CAAQS. Project consistency is based on whether a Project would conflict with or obstruct implementation of the AQMP and/or applicable portions of the SIP, which would lead to increases in the frequency or severity of existing air quality violations.

General Plan and Zoning Designation Consistency

The Project is currently planned for areas that are zoned A-2 (General Agriculture), A-2-R (General Agriculture Rural Zone), and A-3 (Heavy Agriculture). These zoning designations are intended primarily for agricultural uses and agricultural-related compatible uses. The Project would be consistent with the Solar Energy Electrical Generator use and is a similar use to the uses permitted in the A-2, A-2-R, and A-3 Zones, subject to securing a CUP. The Project Proponent is currently in the process of submitting a CUP application to Imperial County to receive approval for the Project.

O&M activities associated with the Project would generate approximately 30 motor vehicle trips per day. Based on the allowable residential density for the Project site and equipment associated with agricultural activities, the Project would not significantly increase activities and emissions that have been previously included in the AQMP and SIP.

AQMP and SIP Consistency

As discussed earlier, the ICAPCD has adopted several air quality plans, including the AQMP and SIP. The AQMP does not include any specific measures or requirements that relate to the Project. The PM_{10} SIP includes measures to reduce fugitive dust emissions, and the Project would be required to implement all fugitive dust control measures associated with Regulation VIII.

The Project must also meet the requirements of the CEQA Handbook, including generating emissions that do not exceed the thresholds of significance discussed earlier. Once the significance of the impact is determined, the CEQA Handbook provides a list of feasible mitigation measures which are implemented for the reduction of those direct and indirect emissions created by the Project. Specifically, the CEQA Handbook requires mitigation of construction and operational air emissions.

As discussed later in the emissions analysis, the Project would exceed the recommended threshold of significance for NO_x emissions during construction. Since the Project would result in a significant increase in NO_x emissions, the Project has the potential to conflict with or obstruct implementation of the AQMP and SIP. This impact would be potentially significant. However, implementation of Mitigation Measures AQ-1 through AQ-4 would reduce NO_X emissions below the ICAPCD threshold of significance. Therefore, compliance with all requirements of Mitigation Measure AQ-1 through AQ-4 would reduce significant impacts associated with Project construction to a less than significant level.

CUP Area Analysis (Phased-Construction Scenario)

General Plan and Zoning Designation Consistency

As discussed above, the development of the overall Project, including the CUP area, would be consistent with the land uses permitted in the A-2 and A-2-R Zones. Operation of the CUP area could require approximately two full-time personnel and would generate approximately four motor vehicle trips per day. Based on the allowable residential density for the site and equipment associated with agricultural activities, the CUP area would not significantly increase activities and emissions that have been previously included in the AQMP and SIP.

AQMP and SIP Consistency

As discussed later in the emissions analysis, construction of the CUP area would exceed the recommended threshold of significance for NO_x emissions. Since the CUP area would result in a significant increase in NO_x emissions, the CUP area has the potential to conflict with or obstruct implementation of the AQMP and SIP. This impact would be potentially significant. However, implementation of Mitigation Measures AQ-1 through AQ-3 would reduce NO_X emissions below the ICAPCD threshold of significance. Therefore, compliance with all requirements of Mitigation Measure AQ-1 through AQ-3 would reduce significant impacts associated with Project construction of CUP areas to a less than significant level.

Would the Project violate any air quality standards or contribute substantially to an existing or projected air quality violation?

Project-Level Analysis (Near-Term Scenario)

Construction Emissions

Construction of the Project would result in the temporary generation of ROG, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions. ROG, NO_x, CO, and SO_2 emissions are primarily associated with mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles. Fugitive PM dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on and off site. Construction emission estimates also include the use of five 5-hp diesel-powered generators that operate for 8 hours per day.

Project construction would consist of several types of activities, including site preparation, post installation, electrical work, module installation, construction of the substation and O&M buildings, and construction of electrical transmission facilities. The Project is assumed to be built over an 18-month period. Construction activities would generally occur for 8 hours per day and 5 days per week. The Project's construction emissions were modeled based on a worst-case scenario representing an intensive day of construction to conservatively estimate the maximum daily emissions. This assumes that all construction activities (except mobilization) will overlap for a few months during the construction period. Given that exhaust emissions rates of the construction equipment fleet in California are expected to decrease over time as stricter standards take effect, construction emissions were estimated using the earliest calendar year when construction could begin (i.e., 2015) to generate conservative estimates. If construction were to occur in later years, advancements in engine technology, retrofits, and turnover in the equipment fleet are anticipated to result in lower levels of emissions. Therefore, using the earliest year of construction provides the most conservative estimate of construction emissions.

Construction emissions associated with the Project were quantified using the California Emissions Estimator Model (CalEEMod) Version 2013.2.2. CalEEMod allows the user to enter project-specific construction information, such as types, number and horsepower of construction equipment, and number and length of off-site motor vehicle trips. Additional information is provided in Appendix A. Table 6 shows the estimated criteria pollutant emissions from construction activities.

Table 6 Project Unmitigated Daily Construction Emissions

Construction Phase	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)[1,2]	$PM_{2.5}$ (lbs/day)[1]
2015						
Mobilization	1.22	13.54	7.71	0.02	0.67	0.52
Site Preparation	22.51	279.03	130.84	0.28	27.35	11.67
Post Installation	6.30	42.95	54.33	0.06	4.50	2.98
Below Grade Electrical	4.06	29.93	39.21	0.05	3.50	2.07
Above Grade Electrical	1.15	3.54	20.65	0.02	1.88	0.57
Module Installation	1.68	10.34	26.00	0.03	2.27	0.93
Substation	2.56	19.88	28.29	0.03	2.64	1.27
Transmission Line[3]	1.89	12.53	25.00	0.03	2.24	0.90
Miscellaneous	1.64	7.35	22.36	0.03	2.07	0.76
2015 Maximum Daily[4,5] Emissions	**41.79**	**405.55**	**346.70**	**0.54**	**46.44**	**21.15**
2016						
Site Preparation	21.00	257.44	122.88	0.28	26.42	10.81
Post Installation	6.15	41.12	52.43	0.06	4.39	2.88
Below Grade Electrical	3.79	27.85	37.01	0.05	3.39	1.97
Above Grade Electrical	1.02	3.19	18.53	0.02	1.86	0.56
Module Installation	1.50	9.28	23.84	0.03	2.20	0.87
Substation	2.36	18.61	26.05	0.03	2.59	1.22
Transmission Line[3]	1.72	11.57	22.63	0.03	2.20	0.87
O&M Buildings	2.36	18.62	26.06	0.03	2.59	1.22
Miscellaneous	1.47	6.70	20.14	0.03	2.04	0.73
Demobilization	1.22	13.54	7.71	0.02	0.67	0.52
2016 Maximum Daily Emissions[4,5]	**41.37**	**394.36**	**349.56**	**0.57**	**47.66**	**21.11**
Maximum Daily Emissions	**41.79**	**405.55**	**349.56**	**0.57**	**47.66**	**21.15**
Threshold of Significance	75	100	550	N/A	100	N/A
Significant Impact?	No	YES	No	No	No	No

Table 6 Project Unmitigated Daily Construction Emissions

[1] PM_{10} emissions shown include the sum of particulate matter with aerodynamic diameter 0 to 2.5 microns and particulate matter with aerodynamic diameter 2.5 to 10 microns.

[2] Fugitive dust emissions were reduced based on watering two times per day, applying soil stabilizers, and limiting speeds on unpaved roads.

[3] The "Transmission Line" construction phase includes construction of the Wistaria Solar Energy Center Project gen-tie and electrical collector corridor lines, as well as improvements to the existing Mount Signal Solar Project gen-tie line.

[4] Maximum daily emissions for 2015 and 2016 assume that all construction phases (except mobilization in 2015 and demobilization in 2016) will overlap during each year.

[5] Totals may not add correctly due to rounding.

ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter

Source: Estimated by AECOM in 2014

As shown in Table 6, construction-related emissions of ROG, CO, SO_2, PM_{10}, and $PM_{2.5}$ would not exceed the thresholds of significance and would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. However, construction-generated NO_x emissions would exceed the applicable mass emission thresholds. Therefore, temporary construction emissions would have a significant impact to regional air quality.

In addition to mitigation measures to reduce NO_x emissions, mitigation measures are required to reduce PM_{10} emissions associated with construction of the Project. All construction sites, regardless of size, must comply with the requirements contained within Regulation VIII and implement standard mitigation measures for fugitive PM_{10} control even if there is no significant impact from PM_{10}. The implementation of discretionary mitigation measures applies to those construction sites that are 5 acres or more in size for non-residential developments.

The ICAPCD recommends the implementation of effective and comprehensive mitigation measures. To reduce construction-related emissions, the Project shall implement applicable control measures for the duration of the construction period, as follows:

AQ-1 The Project Proponent shall submit to the ICAPCD for approval a dust control plan identifying all sources of PM_{10} emissions and associated mitigation measures during the construction and operational phases of the Project. The Project Proponent shall submit a "Construction Notification Form" to the ICAPCD 10 days prior to the commencement of any earthmoving activity. The dust control plan submitted to the ICAPCD shall meet all applicable requirements for control of fugitive dust emissions, including the following measures:

- All disturbed areas, including bulk material storage that is not being actively utilized, shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material, such as vegetative ground cover. Bulk material is defined as earth, rock, silt, sediment, and other organic and/or inorganic material consisting of or containing PM with 5 percent or greater silt content.
- All on-site and off-site unpaved roads shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.

- All unpaved traffic areas 1 acre or more in size with 75 or more average vehicle trips per day, shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- The transport of bulk materials shall be completely covered, unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at the delivery site after removal of bulk material.
- All track-out or carry-out, which includes bulk materials that adhere to the exterior surfaces of motor vehicles and/or equipment (including tires) that may then fall onto the pavement, will be cleaned at the end of each workday, or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- Movement of bulk material handling or transfer shall be stabilized prior to handling, or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- The construction of new unpaved roads is prohibited within any area with a population of 500 or more, unless the road meets ICAPCD's definition of a "temporary unpaved road." Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

AQ-2 The Project Proponent shall comply with all applicable standard mitigation measures for construction combustion equipment for the reduction of excess NO_x emissions as contained in the Imperial County CEQA Air Quality Handbook and associated regulations. These measures include:

- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.
- Minimize idling time, either by shutting equipment off when not in use or reducing the time of idling to five minutes at a maximum.
- Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use.
- Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set and they are available, cost effective, and capable of performing the task in an effective, timely manner).
- Register all portable engines 50 hp or greater with the ICAPCD.
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing construction activity during the peak hour of vehicular traffic on adjacent roadways.
- Implement activity management (e.g. rescheduling activities to avoid overlap of construction phases, which would reduce short-term impacts).

AQ-3 The Project Proponent shall also utilize all Tier 3 or better construction equipment, unless such an engine is not available for a particular item of equipment.

AQ-4 The Project Proponent shall pay an emission mitigation fee sufficient to offset the amount by which the Project's NO_x emissions exceed the 100 lbs/day threshold consistent with ICAPCD Policy #5. ICAPCD allows a project to pay in-lieu impact fees utilizing the most current Carl Moyer Cost Effective methodology to reduce excess NO_x emissions. Under the ICAPCD program, the exact amount of the fee cannot be calculated until the time of construction when more precise data regarding the construction equipment types and hours of operation are known and ICAPCD can calculate the fee. Prior to any earthmoving activity, the Project Proponent shall submit to the ICAPCD a complete list of all construction equipment to be utilized during the construction phase identifying Make, Model, Year, Horsepower and estimated hours of usage.

Implementation of Mitigation Measures AQ-1 through AQ-4 would reduce criteria pollutant emissions associated with construction of the Project. NO_x emission reductions were estimated for Mitigation Measure AQ-3, which requires the use of Tier 3 engines. Potential reductions were not estimated for the remaining mitigation measures, since it is unknown the extent to which they would be incorporated into construction of the Project. The mitigated NO_x emissions were estimated at 211.19 and 218.24 pounds per day in 2015 and 2016, respectively. Therefore, construction-related NO_x emissions would still exceed the threshold of significance of 100 pounds per day. However, Mitigation Measure AQ-4 would require payment of an offset fee to reduce total construction-related emissions below the threshold of significance. The fees paid to the ICAPCD would be used to fund mitigation projects that reduce NO_x emissions throughout the county. Therefore, construction of the Project would not violate air quality standards or contribute substantially to an existing or projected air quality violation. This impact would be less than significant with mitigation.

Operational Emissions

The Project would incorporate an on-site O&M building for each CUP area. The Project is expected to generate approximately 30 average daily trips associated with worker commute trips. Given the Project location, it was estimated that each one-way trip would be approximately 40 miles.

On-site operations activity would include in-place panel washing, which would require approximately 60 acre feet of water per year. Operational emissions would also result from intermittent use of diesel-powered emergency generators for maintenance and testing purposes. Each 250-hp generator would be run for testing and maintenance for approximately 1 hour each week, for a total of 50 hours per year. Table 7 shows the estimated criteria pollutant emissions from operational activities. Additional details are included in Appendix A.

Table 7 Project Unmitigated Daily Operational Emissions

Emissions Source	**ROG (lbs/day)**	**NO_X (lbs/day)**	**CO (lbs/day)**	**SO_2[3] (lbs/day)**	**PM_{10} (lbs/day)**	**$PM_{2.5}$ (lbs/day)**
Operational Emissions	2.34	26.34	17.64	0.06	44.35	7.34
Threshold of Significance	55	55	550	150	150	N/A
Significant Impact?	No	No	No	No	No	No

[1] Emissions shown represent the maximum daily emissions that would occur from summertime or wintertime operations.
[2] Totals may not add correctly due to rounding.
[3] SO_2 emissions are used to represent SO_x emissions for purposes of comparing Project-related emissions to the threshold, as the ICAPCD does not have a threshold of significance for SO_2.
ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter.
Source: Estimated by AECOM in 2014

As shown in Table 7, the Project's operational emissions would not exceed the thresholds of significance for the identified criteria pollutants. Therefore, the Project would not result in a significant increase in operational emissions. However, the Project site would include unpaved areas, and operational activities would include travel on unpaved roads. Similar to construction-related PM_{10} impacts, mitigation measures are required to reduce PM_{10} emissions associated with operation of the Project. The Project will implement Mitigation Measure AQ-1 to reduce any potential impacts associated with the generation of fugitive dust emissions. This impact would be less than significant with mitigation.

CUP Area Analysis (Phased-Construction Scenario)

Construction Emissions

Based on a total construction schedule of 10 years for all 17 CUP areas, each CUP area would be constructed over approximately 7 months. Construction of the CUP area would consist of the same activities as the overall Project, including site preparation, post installation, electrical work, module installation, construction of the substation and O&M building, and construction of electrical transmission facilities. Construction activities would generally occur for 8 hours per day and 5 days per week, which includes the use of three 5-hp diesel-powered generators that operate for 8 hours per day.

Construction emissions were quantified using the CalEEMod. Table 8 shows the estimated criteria pollutant emissions from construction activities. Additional information is provided in Appendix A.

Table 8 CUP Area Unmitigated Daily Construction Emissions

Construction Phase	**ROG (lbs/day)**	**NO_X (lbs/day)**	**CO (lbs/day)**	**SO_2 (lbs/day)**	**PM_{10} (lbs/day)[1,2]**	**$PM_{2.5}$ (lbs/day)[1]**
2015 Maximum Daily Emissions	9.86	105.86	68.46	0.11	14.09	5.55
2016 Maximum Daily Emissions	3.51	33.76	29.71	0.04	2.79	1.76
Maximum Daily Emissions [3]	**9.86**	**105.86**	**68.46**	**0.11**	**14.09**	**5.55**
Threshold of Significance	75	100	550	N/A	100	N/A
Significant Impact?	No	YES	No	No	No	No

[1] PM_{10} emissions shown include the sum of particulate matter with aerodynamic diameter 0 to 2.5 microns and particulate matter with aerodynamic diameter 2.5 to 10 microns.

[2] Fugitive dust emissions were reduced based on watering two times per day, applying soil stabilizers, and limiting speeds on unpaved roads.

[3] Totals may not add correctly due to rounding.

ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter

Source: Estimated by AECOM in 2014

As shown in Table 8, construction-related emissions of ROG, CO, SO_2, PM_{10}, and $PM_{2.5}$ would not exceed the thresholds of significance and would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. However, construction-generated NO_x emissions would exceed the applicable mass emission thresholds. Therefore, temporary construction emissions would have a significant impact to regional air quality.

Implementation of Mitigation Measures AQ-1 through AQ-3 would reduce NO_x emissions associated with construction of the CUP area. The mitigated NO_x emissions were estimated at 50.04 pounds per day in 2015 and would not exceed the threshold of significance of 100 pounds per day. This impact would be less than significant with mitigation.

Operational Emissions

The CUP area would incorporate an on-site O&M building and would be expected to generate approximately four average daily trips associated with worker commutes. It was estimated that each one-way trip would be approximately 40 miles. On-site operations activity would include in-place panel washing and intermittent use of diesel-powered emergency generators for maintenance and testing purposes. This analysis assumes that one 250-hp generator would be run for approximately 1 hour each week, for a total of 50 hours per year. Table 9 shows the estimated criteria pollutant emissions from operational activities. Additional details are included in Appendix A.

Table 9 CUP Area Unmitigated Daily Operational Emissions

Emissions Source	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2[3] (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Operational Emissions	0.21	1.96	2.53	0.01	10.8	1.6
Threshold of Significance	55	55	550	150	150	N/A
Significant Impact?	No	No	No	No	No	No

[1] Emissions shown represent the maximum daily emissions that would occur from summertime or wintertime operations.

[2] Totals may not add correctly due to rounding.

[3] SO_2 emissions are used to represent SO_x emissions for purposes of comparing CUP area emissions to the threshold, as the ICAPCD does not have a threshold of significance for SO_2.

ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter.

Source: Estimated by AECOM in 2014

As shown in Table 9, the operational emissions for the CUP area would not exceed the thresholds of significance for the identified criteria pollutants. Therefore, the CUP area would not result in a significant increase in operational emissions. However, the CUP area would include unpaved areas, and operational activities would include travel on unpaved roads. Implementation of Mitigation Measure AQ-1 would reduce any potential impacts associated with the generation of fugitive dust emissions. This impact would be less than significant with mitigation.

Decommissioning Phase

Construction emissions for the decommissioning phase were estimated using the CalEEMod. The decommissioning analysis for criteria pollutant emissions is applicable to both the Project-Level Analysis (Near-Term Scenario) and CUP area Analysis (Phased-Construction Scenario), since the maximum daily emissions for decommissioning for the Project would represent a conservative estimate of emissions in future years.

As shown in Table 10, the daily emissions associated with decommissioning would not exceed the thresholds of significance. Therefore, this impact would be less than significant.

Table 10 Decommissioning Unmitigated Daily Emissions

Construction Phase	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)[1,2]	$PM_{2.5}$ (lbs/day)[1]
Maximum Daily Emissions	9.06	29.03	77.49	0.23	22.82	3.99
Threshold of Significance	75	100	550	N/A	100	N/A
Significant Impact?	No	No	No	No	No	No

[1] PM_{10} emissions shown include the sum of particulate matter with aerodynamic diameter 0 to 2.5 microns and particulate matter with aerodynamic diameter 2.5 to 10 microns.

[2] Fugitive dust emissions were reduced based on watering two times per day, applying soil stabilizers, and limiting speeds on unpaved roads.

ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter

Source: Estimated by AECOM in 2014

<u>Would the Project expose sensitive receptors to substantial pollutant concentrations?</u>

Project-Level Analysis (Near-Term Scenario)

Some members of the population are especially sensitive to air pollutant emissions and are given additional consideration when evaluating air quality impacts from projects, including children, older adults, and persons with preexisting respiratory or cardiovascular illness. Therefore, at-risk land uses sensitive to poor air quality would include residences, schools, day care centers, playgrounds, medical facilities, and nursing homes. Recreational land uses, such as parks, are also considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally relatively short.

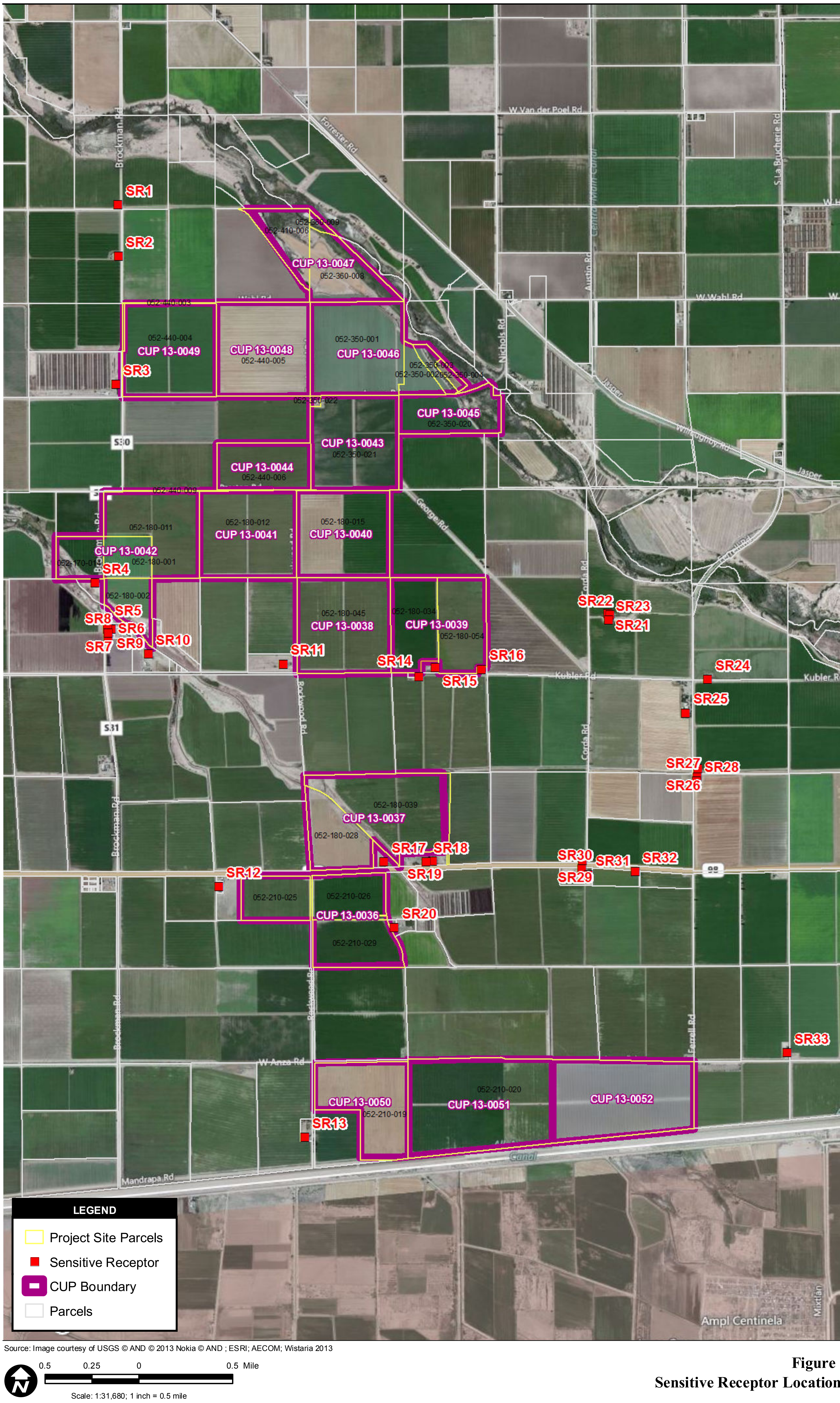
As shown in Figure 4, the land uses surrounding the Project are primarily agricultural in nature. Residences occur adjacent to the Project site along several of the CUP areas. These are considered the closest sensitive receptors that would be affected by construction and operation of the Project.

<u>Construction Impacts</u>

The greatest potential for TAC emissions resulting from construction of the Project would originate from diesel exhaust particulate matter (DPM) emissions associated with heavy equipment operations during construction activities. PM exhaust emissions from diesel-fueled engines were identified as a carcinogenic TAC by the ARB in 1998 (ARB 1998). Project construction would result in the generation of DPM emissions from the use of off-road diesel construction equipment required for clearing and grading, as well as earthmoving, trenching, materials handling and installation, and other construction activities. Most DPM emissions associated with material delivery trucks and construction worker vehicles would occur off site. For the purposes of this analysis, PM_{10} exhaust emissions from on-site diesel-fueled construction equipment were used to represent DPM emissions, as DPM is considered to be less than or equal to 10 micrometers in diameter. Therefore, PM_{10} represents the upper limit for DPM emissions associated with construction of the Project.

The generation of DPM from construction projects typically occurs in a single area for a short period of time. The dose of TACs to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure a person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period to a fixed amount of emissions results in a higher exposure level and higher health risks for the maximally exposed individual. According to the Office of Environmental Health Hazard Assessment's health risk assessments program (OEHHA 2003), which is used to determine the exposure of sensitive receptors to TAC emissions, cancer risk should be based on a 70-year exposure period; however, such assessments can be limited to the period/duration of activities associated with the Project.

The longest period that construction activities would occur at a distance reasonably considered to have an effect on a sensitive receptor is approximately 18 months. Thus, if the duration of construction activities near a sensitive receptor is 18 months, then the exposure would be approximately two percent of the total exposure period used for typical health risk calculations (i.e., 70 years).



Source: Image courtesy of USGS © AND © 2013 Nokia © AND ; ESRI; AECOM; Wistaria 2013

Figure 4
Sensitive Receptor Locations

The SCREEN3 emissions modeling program is used to estimate pollutant concentrations at specific distances from emission sources. SCREEN3 incorporates conservative assumptions, such as a single wind direction blowing toward the receptor, limited mixing (of air and pollutants), and simple terrain. A volume source in SCREEN3 was used to represent construction activities that would occur on the Project site. The area of the volume source was assumed to be the total acreage of the two CUP areas to account for the fact that construction emissions may occur on a given day over that entire area. The volume sources representing emissions from the construction equipment were given an initial exhaust release height of 5 meters to account for the height of the equipment exhaust stack and initial plume rise of the heated exhaust. An initial vertical dimension of 1.2 meters was also applied to the volume sources. The edge of the volume source was assumed to be located at the boundary of the Project site closest to the nearest sensitive receptor (SR 17), which is located southeast of Assessor's Parcel Number 052-180-028 and north of State Route 98. The location of this sensitive receptor is adjacent to two CUP areas (CUP 13-0036 and CUP 13-0037) and would be subject to the highest potential emission concentrations. The results of the SCREEN3 dispersion modeling estimated that the nearest sensitive receptor would be exposed to an average annual DPM concentration of 0.16 micrograms per cubic meter ($\mu g/m^3$).

This assessment considers exposure via inhalation only. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for DPM are not known for these pathways (ARB 1998). The risk is calculated by multiplying the dose by the inhalation potency factor. The inhalation potency factor for diesel PM is 1.1 milligrams per kilogram per day (mg/kg/day) (OEHHA 2003).

The resulting estimated cancer risk is 1.10 in one million. The estimated cancer risk was based on the annual average DPM concentration estimated with the SCREEN3 model, inhalation potency factor, and default estimates of breathing rate, body weight, and exposure period (OEHHA 2003). Additional details are provided in Appendix B. The modeled cancer risks would not exceed the significance threshold of ten in one million. Therefore, the Project's construction-related cancer risk to sensitive receptors would be less than significant.

In addition to the potential cancer risk, DPM may result in chronic (i.e., long-term) noncancer health impacts. The chronic noncancer inhalation hazard indices for the Project were calculated by dividing the modeled annual average DPM concentrations by the Reference Exposure Level (REL). The REL is the concentration below which no adverse non-cancer health effects are anticipated. The OEHHA has recommended an ambient concentration of 5 $\mu g/m^3$ as the chronic inhalation REL for DPM. No inhalation REL for acute (i.e., short-term) effects has been determined for DPM by OEHHA. The chronic hazard index for the nearest sensitive receptor would be 0.032, which is less than the significance threshold of 1.0 for non-cancer health impacts. Therefore, the non-cancer health impacts associated with the Project's construction-related TAC impacts to sensitive receptors would be less than significant.

Operational Impacts

Operation of the Project would primarily involve gasoline- and/or diesel-fueled vehicles associated with worker commutes and in-place solar panel washing. Worker commutes would involve 30 average daily trips and would occur off site. Panel washing would involve substantially fewer vehicles than construction activities (up to four vehicles per day), and diesel equipment used for panel washing would operate intermittently over the entire Project site. Operational emissions would also result from intermittent use of diesel-powered emergency generators for maintenance and testing purposes and would be permitted by the ICAPCD. No stationary sources of TAC emissions are anticipated to be located on the Project site. Therefore, it is not anticipated that individual receptors would be exposed to TAC emissions during operation of the Project.

The Project would not expose sensitive receptors to substantial operational pollutant concentrations. The impact would be less than significant.

CUP Area Analysis (Phased-Construction Scenario)

As shown in Figure 4, the land uses surrounding CUP 13-0037 are primarily agricultural in nature. Several residential properties are located adjacent to the site. These are considered the closest sensitive receptors that would be affected by construction and operation of the CUP area.

<u>Construction Impacts</u>

The greatest potential for TAC emissions resulting from construction of the CUP area would originate from DPM emissions associated with heavy equipment operations during construction activities. The longest period that construction activities would occur at a distance reasonably considered to have an effect on a sensitive receptor is approximately 7 months. Thus, if the duration of construction activities near a sensitive receptor is 7 months, then the exposure would be approximately 1 percent of the total exposure period used for typical health risk calculations.

As discussed under the Project-level analysis, SCREEN3 was used to estimate pollutant concentrations from construction activities. The SCREEN3 modeling included CUP 13-0037, as well as the emissions associated with construction of CUP 13-0036. The estimated cancer risk for the combined CUP areas was less than the significance threshold of ten in one million. In addition, the chronic hazard index was less than the significance threshold of 1.0 for non-cancer health impacts. Additional details are provided in Appendix B. Since the combined impacts related to TAC emissions from CUP 13-0036 and CUP 13-0037 would not result in a significant impact, it can be expected that the individual impacts of those CUP areas would also be less than significant.

<u>Operational Impacts</u>

Operation of the CUP area would primarily involve gasoline- and/or diesel-fueled vehicles associated with worker commutes and in-place solar panel washing. Operational emissions would also result from intermittent use of diesel-powered emergency generators for maintenance and testing purposes and would be permitted by the ICAPCD. No stationary sources of TAC emissions are anticipated to be located in the CUP area. Therefore, it is not anticipated that individual receptors would be exposed to TAC emissions during operations.

The CUP area would not expose sensitive receptors to substantial operational pollutant concentrations. The impact would be less than significant.

Decommissioning Phase

As discussed earlier, SCREEN3 was used to estimate pollutant concentrations from construction activities. The estimated cancer risk was less than the significance threshold of ten in one million. In addition, the chronic hazard index was less than the significance threshold of 1.0 for non-cancer health impacts. Since the decommissioning activities would require approximately one-half the off-road equipment as the initial construction period, it can be expected that the impacts associated with the decommissioning phase would also be less than significant. Furthermore, construction equipment used in the decommissioning would be operating with cleaner engines (e.g., Tier 4 or better) that significantly reduce criteria pollutant and TAC emissions. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations during the decommissioning phase. The impact would be less than significant.

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

Project-Level Analysis (Near-Term Scenario)

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. While offensive odors rarely cause physical harm, they still can be very unpleasant, and can generate citizen complaints to local governments and regulatory agencies.

Potential sources that may emit odors during construction and decommissioning activities include exhaust from diesel construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, nearby receptors are not anticipated to be adversely affected by diesel exhaust odors associated with Project construction. Odors from these sources would be localized and generally confined to the immediate area surrounding the Project site. The odors would be typical of most construction sites and temporary in nature. Operation of the Project would not be expected to add new odor sources. As a result, the Project would not create objectionable odors affecting a substantial number of people. The impact would be less than significant.

CUP Area Analysis (Phased-Construction Scenario)

Odor impacts for the CUP area would be similar to the overall Project. Odors from construction and decommissioning activities, including diesel exhaust, would be localized and generally confined to the immediate area surrounding the construction site. The odors would be typical of most construction sites and temporary in nature. Operation of the CUP area would not be expected to add new odor sources. As a result, the CUP area would not create objectionable odors affecting a substantial number of people. The impact would be less than significant.

Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Project-Level Analysis

Construction Impacts

Short-term construction of the Project would generate GHG emissions. Construction emissions would be associated with vehicle engine exhaust from construction equipment, haul trips, construction worker trips, and water consumption. Construction activities will require approximately 1,200 acre-feet of water for dust control and other construction activities. GHG emissions generated by the Project would predominantly consist of CO_2. While emissions of other GHGs, such as CH_4, are important with respect to global climate change, emission levels of other GHGs are less dependent on the emissions-generating activities associated with the Project than are levels of CO_2. However, where appropriate emission factors were available, emissions of CH_4 and N_2O were included in the analysis of the Project.

Total construction-related GHG emissions were estimated using CalEEMod with the same inputs and assumptions that were used to estimate criteria pollutant construction emissions. Construction of the

Project was estimated to generate approximately 7,463 MT CO_2 over the duration of the 18-month construction period.[2] Therefore, the total estimated construction-related GHG emissions of 7,463 MT CO_2 associated with the Project is divided by 30 years (approximately 249 MT CO_2 per year) to estimate the amortized construction emissions over the lifetime of the Project.

Decommissioning of the Project was estimated to generate approximately 4,580 MT CO_2 over the duration of the decommissioning period.[3] Therefore, the total estimated GHG emissions are divided by 30 years to estimate the amortized decommissioning emissions (approximately 153 MT CO_2 per year).

Operational Impacts

Operational-period GHG emissions would originate from direct and indirect emissions sources generated by mobile sources, electricity use, water consumption, and treatment of wastewater generated at the Project site. Mobile source emissions would be associated with activities such as off-road equipment use, diesel generator testing and maintenance, and vehicle travel required for maintenance of the PV units and the surrounding site. On-site operational activities would include in-place panel washing, which would require approximately 60 acre feet of water per year.

As stated in the Project Description, the PV modules will be mounted on fixed-tilt, single, or dual-axis tracking structures. The estimate of GHG emissions assumes that all PV modules will be on trackers, and that there would be use of grid-provided electricity to power the PV trackers. Consumption of water may result in indirect GHG emissions from electricity used to power off-site conveyance, distribution, and treatment of water and associated wastewater. The analysis also assumes that wastewater would be conveyed to a water reclamation facility. This likely overestimates wastewater-related emissions, because (1) most water would be used and disposed of on site, and (2) no organic material, which affects GHG emissions in wastewater treatment, would be added to the wastewater coming from the Project.

The Project will include gas-insulated switchgear (e.g., circuit breakers) that uses SF_6, which is a GHG often associated with high-voltage switching devices as an electrical insulating medium. The circuit breakers have the potential to leak small amounts of SF_6 to the atmosphere. New circuit breakers are reported to have a potential upper-bound leakage rate of 0.5 percent (Blackman 2006). The total SF_6 capacity for the Project is estimated at 960 pounds. Using the leakage rate of 0.5 percent per year, the annual SF_6 emissions for the Project would be 4.8 pounds. Based on the high GWP of SF_6, the estimated CO_2e emissions are approximately 52 MT per year.

Table 11 shows the summary of operational GHG emissions estimated for the Project. The annual operational emissions levels were estimated using the best available methodologies and emission factors available at the time of writing this report. Additional details are available in Appendix A.

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[2] Total construction-related emissions include CalEEMod estimates (4,943 MT CO_2) and water use (2,520 MT CO_2).

[3] Total decommissioning-related emissions include CalEEMod estimates (2,060 MT CO_2) and water use (2,520 MT CO_2). Water use for decommissioning was conservatively estimated to be the same as the initial construction period.

Table 11 Project GHG Emissions

Emissions Source	MT CO_2e per Year
Off-Road Equipment/On-Road Vehicles	321
Energy	1,721
Water	126
Wastewater	30
Gas-Insulated Switches	52
Total (Operational)	2,250
Total Amortized Construction	243
Total Amortized Decommissioning	153
Total (Operational + Amortized Construction)	2,646

Note: Totals may not add correctly due to rounding.

Source: Estimated by AECOM in 2014

The total construction-related and operational CO_2e emissions associated with the Project would be less than the SCAQMD threshold of 10,000 MT CO_2e per year. Therefore, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. This impact would be less than significant.

CUP Area Analysis

Construction Impacts

Short-term construction of the CUP area would generate GHG emissions. Construction emissions would be associated with vehicle engine exhaust from construction equipment, haul trips, and construction worker trips. Construction of the CUP area was estimated to generate approximately 671 MT CO_2 over the duration of the 7-month construction period.[4] Therefore, the total estimated construction-related GHG emissions are divided by 30 years to estimate the amortized construction emissions (approximately 22 MT CO_2 per year).

Decommissioning of the CUP area was estimated to generate approximately 474 MT CO_2 over the duration of the decommissioning period.[5] Therefore, the total estimated GHG emissions are divided by 30 years to estimate the amortized decommissioning emissions (approximately 16 MT CO_2 per year).

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[4] Total construction-related emissions include CalEEMod estimates (449 MT CO_2) and water use (222 MT CO_2).

[5] Total decommissioning-related emissions include CalEEMod estimates (252 MT CO_2) and water use (222 MT CO_2). Water use for decommissioning was conservatively estimated to be the same as the initial construction period.

Operational Impacts

Operational GHG emissions would be generated by mobile sources, electricity use, water consumption, wastewater treatment, and the use of gas-insulated switches. Mobile source emissions would be associated with off-road equipment use, diesel generator testing and maintenance, and vehicle travel required for maintenance of the PV units and the surrounding site. On-site operational activity would include in-place panel washing, which would require approximately 5 acre feet of water per year.[6] The total SF_6 capacity for the CUP area is estimated at 84 pounds with annual SF_6 emissions for the CUP at 0.42 pounds. Based on the high GWP of SF_6, the estimated CO_2e emissions are approximately 5 MT per year.

Table 12 shows the summary of operational GHG emissions estimated for the CUP area. The annual operational emissions levels were estimated using the best available methodologies and emission factors available at the time of writing this report. Additional details are available in Appendix A.

Table 12 CUP Area GHG Emissions

Emissions Source	MT CO_2e per Year
Off-Road Equipment/On-Road Vehicles	27
Energy	151
Water	11
Wastewater	3
Gas-Insulated Switches	5
Total (Operational)	197
Total Amortized Construction	22
Total Amortized Decommissioning	16
Total (Operational + Amortized Construction)	235

Note: Totals may not add correctly due to rounding.

Source: Estimated by AECOM in 2014

The total construction-related and operational CO_2e emissions associated with the CUP area would be less than the SCAQMD threshold of 10,000 MT CO_2e per year. Therefore, the CUP area would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. This impact would be less than significant.

[6] The water use estimates for the CUP area are based on the ratio of CUP MW to the total Project MW (22 MW/250MW).

Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Project-Level Analysis

ARB's Scoping Plan includes measures to meet California's goal of reducing emissions to 1990 levels by 2020 and also reiterates the State's role in the long-term goal established in Executive Order S-3-05, which is to reduce GHG emissions to 80 percent below 1990 levels by 2050. According to ARB, the 2020 goal was established as an achievable, mid-term target, and the 2050 GHG emissions reduction goal represents the level scientists believe is necessary to stabilize the climate (ARB 2008).

None of the measures listed in the ARB Scoping Plan, which contains the main strategies that California will use to achieve emission reductions necessary to meet the goals of AB 32, directly relate to construction activity. The Scoping Plan includes some measures that would indirectly address GHG emissions levels associated with construction activity, such as the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a Low Carbon Fuel Standard. However, successful implementation of these measures will predominantly depend on the development of laws and policies at the State level. It is assumed that those policies formulated under the mandate of AB 32 that are applicable to construction-related activity, either directly or indirectly, would be implemented during construction of the Project if those policies and laws are in fact developed and adopted before the commencement of Project construction. Therefore, Project construction would not conflict with the Scoping Plan.

The measures in the Scoping Plan also put California on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels. Implementing light-duty vehicle GHG emission standards, LCFS, regional transportation-related GHG targets, and the RPS as set forth in the Scoping Plan would continue to achieve reductions through at least 2030. However, the Scoping Plan does not recommend additional measures for meeting specific GHG emissions limits beyond 2020. The Scoping Plan is currently being updated, and additional information on the revised measures is not available at the time this report was developed. In addition, operation and decommissioning of the Project is anticipated to be completed prior to 2050.

Although construction and operation of the Project would result in an increase of GHG emissions, it is aligned with the goals of AB 32. The Project would provide non-fossil-fuel-based electricity and would support the State's goal to obtain 33 percent of all electricity from renewable sources and, therefore, help to achieve 1990 statewide emissions levels by 2020.

In order to demonstrate that the Project is aligned with and supporting the goals of AB 32, the Scoping Plan, and the RPS, it is important to understand the indirect (secondary) impacts of its approval -- the amount of carbon savings that would be derived from implementation of the Project, as opposed to implementation of a carbon-based power plant, was estimated for this report.

The total amount of carbon savings from implementation of the Project is estimated at 341,200 MT CO_2e per year. After accounting for annual operational emissions and amortized construction and decommissioning emissions of 2,646 MT CO_2e per year, the Project would result in a net carbon savings of 338,554 MT CO_2e per year. As these emissions reductions are accounted for by a utility that will be using them to meet its RPS goal, the reductions are not factored into the significance findings for this report; however, quantifying them does demonstrate that the Project will assist the State in meeting its RPS goal.

As discussed earlier, the Project would not generate GHG emissions that would have a significant impact on the environment. Neither the county nor any other agency with jurisdiction over this Project has adopted climate change or GHG reduction measures with which the Project would conflict. The Project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Therefore, this impact would be less than significant.

CUP Area Analysis

Construction and operation of the CUP area is aligned with the goals of AB 32 and would provide non-fossil-fuel-based electricity. Therefore, the CUP area would support the State's goal to obtain 33 percent of all electricity from renewable sources and help to achieve 1990 statewide GHG emissions levels by 2020.

The total amount of carbon savings from implementation of the CUP area is estimated at 30,026 MT CO_2e per year. After accounting for annual emissions of 235 MT CO_2e per year, the CUP area would result in a net carbon savings of 29,791 MT CO_2e per year. As these emissions reductions are accounted for by a utility that will be using them to meet its RPS goal, the reductions are not factored into the significance findings for this report; however, quantifying them does demonstrate that the CUP area will assist the State in meeting its RPS goal.

As discussed earlier, the CUP area would not generate GHG emissions that would have a significant impact on the environment. Construction and operation of the CUP area would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Therefore, this impact would be less than significant.

5.3 Cumulative Impacts

Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is classified as nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Project-Level Analysis

The cumulative analysis focuses on whether a specific project would result in a cumulatively considerable increase in emissions. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SSAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The thresholds of significance are relevant to whether a project's individual emissions would result in a cumulatively considerable incremental contribution to the existing cumulative air quality conditions. If a project's emissions would be less than those threshold levels, the project would not be expected to result in a considerable incremental contribution to the significant cumulative impact.

As discussed earlier, the Project would result in the generation of NO_x emissions at levels that exceed the thresholds for construction activities. The Project's operational emissions would not exceed the thresholds of significance for any criteria pollutants. These thresholds are designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable State and Federal ambient air quality standards. Projects that would not exceed the thresholds of significance would not contribute a considerable amount of criteria air pollutant emissions to the region's emissions profile, and would not impede attainment and maintenance of ambient air quality standards.

Implementation of Mitigation Measures AQ-1 through AQ-4 would reduce the Project's construction and operational emissions below the ICAPCD threshold of significance. Therefore, impacts related to a cumulatively considerable net increase of criteria pollutants would be less than significant.

CUP Area Analysis

As discussed earlier, the CUP area would generate NO_x emissions at levels that exceed the thresholds for construction activities and would have a cumulatively considerable contribution to the region's air quality. Operational emissions would not exceed the thresholds of significance for any criteria pollutants. Implementation of Mitigation Measures AQ-1 through AQ-3 would reduce criteria pollutant emissions below the air quality significance thresholds. Therefore, impacts related to a cumulatively considerable net increase of criteria pollutants would be reduced to a less than significant level.

6.0 References

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Appendix A

Emission Estimates

Wistaria Ranch Solar Energy Center

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	2,793.00	User Defined Unit	2,793.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2016
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cancer Risk Calculation

Cancer Risk Equations (Risk = Dose-Inhalation * CPF)

Cancer Potency Factor (Inhalation)	1.1	mg/kg/day
Concentration (annual avg)	0.161856	μg/m^3
Breathing Rate	302	liter/kg/day
Inhalation Absorption Factor	1	DPM
Exposure Frequency	350	days/year
Exposure Duration	70	years
Averaging Time Period	25550	days/period
Multiplying Factor	318.55	μg/m^3
Adjustment Exposure Period	1.5	years
Cancer Risk (w/ adjustment)	1.10	
Health Hazard REL (DPM)	5	μg/m^3
Health Hazard Index	0.032	
Adjustment Factor	0.1	
Concentration	1.61856	

12/10/13
21:45:51

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wistaria Ranch - Source 1


SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =       VOLUME
   EMISSION RATE (G/S)      =      .141000E-02
   SOURCE HEIGHT (M)        =       5.0000
   INIT. LATERAL DIMEN (M)  =     124.9100
   INIT. VERTICAL DIMEN (M) =       1.1600
   RECEPTOR HEIGHT (M)      =       2.0000
   URBAN/RURAL OPTION       =        RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.0000	0	.0	.0	.0	.00	.00	.00	
150.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	.0000	0	.0	.0	.0	.00	.00	.00	
250.	.0000	0	.0	.0	.0	.00	.00	.00	
300.	.3927	6	1.0	1.0	10000.0	5.00	130.67	6.21	NO
350.	.3712	6	1.0	1.0	10000.0	5.00	131.99	6.91	NO
380.	.3583	6	1.0	1.0	10000.0	5.00	132.79	7.32	NO
400.	.3499	6	1.0	1.0	10000.0	5.00	133.32	7.60	NO
450.	.3297	6	1.0	1.0	10000.0	5.00	134.64	8.26	NO
500.	.3109	6	1.0	1.0	10000.0	5.00	135.96	8.92	NO

```
 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************
```

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.3927	300.	0.

```
***************************************************
```

12/10/13
21:48:52

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wistaria Ranch - Source 2


SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =        VOLUME
   EMISSION RATE (G/S)      =       .302000E-02
   SOURCE HEIGHT (M)        =        5.0000
   INIT. LATERAL DIMEN (M)  =      182.7000
   INIT. VERTICAL DIMEN (M) =        1.1600
   RECEPTOR HEIGHT (M)      =        2.0000
   URBAN/RURAL OPTION       =         RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.0000	0	.0	.0	.0	.00	.00	.00	
150.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	.0000	0	.0	.0	.0	.00	.00	.00	
250.	.0000	0	.0	.0	.0	.00	.00	.00	
300.	.0000	0	.0	.0	.0	.00	.00	.00	
350.	.0000	0	.0	.0	.0	.00	.00	.00	
400.	.5312	6	1.0	1.0	10000.0	5.00	188.10	7.60	NO
450.	.5021	6	1.0	1.0	10000.0	5.00	189.36	8.26	NO
460.	.4965	6	1.0	1.0	10000.0	5.00	189.62	8.40	NO
500.	.4749	6	1.0	1.0	10000.0	5.00	190.63	8.92	NO

```
 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************
```

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.5312	400.	0.

```
***************************************************
```

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wistaria Ranch - Source 3


SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =       VOLUME
   EMISSION RATE (G/S)      =      .110000E-02
   SOURCE HEIGHT (M)        =       5.0000
   INIT. LATERAL DIMEN (M)  =     110.2800
   INIT. VERTICAL DIMEN (M) =       1.1600
   RECEPTOR HEIGHT (M)      =       2.0000
   URBAN/RURAL OPTION       =        RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.0000	0	.0	.0	.0	.00	.00	.00	
150.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	.0000	0	.0	.0	.0	.00	.00	.00	
250.	.3610	6	1.0	1.0	10000.0	5.00	115.33	5.48	NO
300.	.3431	6	1.0	1.0	10000.0	5.00	116.68	6.21	NO
350.	.3239	6	1.0	1.0	10000.0	5.00	118.02	6.91	NO
400.	.3049	6	1.0	1.0	10000.0	5.00	119.36	7.60	NO
450.	.2869	6	1.0	1.0	10000.0	5.00	120.70	8.26	NO
500.	.2702	6	1.0	1.0	10000.0	5.00	122.04	8.92	NO
980.	.1731	6	1.0	1.0	10000.0	5.00	134.81	13.95	NO

```
 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************
```

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.3610	250.	0.

```
***************************************************
```

12/10/13
21:53:55

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wistaria Ranch - Source 4


SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =        VOLUME
   EMISSION RATE (G/S)      =       .122000E-02
   SOURCE HEIGHT (M)        =        5.0000
   INIT. LATERAL DIMEN (M)  =      115.9400
   INIT. VERTICAL DIMEN (M) =        1.1600
   RECEPTOR HEIGHT (M)      =        2.0000
   URBAN/RURAL OPTION       =         RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES
***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.0000	0	.0	.0	.0	.00	.00	.00	
150.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	.0000	0	.0	.0	.0	.00	.00	.00	
250.	.0000	0	.0	.0	.0	.00	.00	.00	
300.	.3637	6	1.0	1.0	10000.0	5.00	122.09	6.21	NO
350.	.3435	6	1.0	1.0	10000.0	5.00	123.43	6.91	NO
390.	.3274	6	1.0	1.0	10000.0	5.00	124.50	7.46	NO
400.	.3235	6	1.0	1.0	10000.0	5.00	124.77	7.60	NO
450.	.3046	6	1.0	1.0	10000.0	5.00	126.10	8.26	NO
500.	.2870	6	1.0	1.0	10000.0	5.00	127.43	8.92	NO

```
 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************
```

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.3637	300.	0.

```
***************************************************
```

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21:56:46

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Wistaria Ranch - Source 5

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	VOLUME
EMISSION RATE (G/S)	=	.100000E-04
SOURCE HEIGHT (M)	=	5.0000
INIT. LATERAL DIMEN (M)	=	9.1200
INIT. VERTICAL DIMEN (M)	=	1.1600
RECEPTOR HEIGHT (M)	=	2.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.2926E-01	5	1.0	1.0	10000.0	5.00	11.84	2.82	NO
100.	.2875E-01	6	1.0	1.0	10000.0	5.00	12.59	3.11	NO
150.	.2703E-01	6	1.0	1.0	10000.0	5.00	14.28	3.97	NO
200.	.2430E-01	6	1.0	1.0	10000.0	5.00	15.96	4.72	NO
250.	.2148E-01	6	1.0	1.0	10000.0	5.00	17.62	5.48	NO
300.	.1889E-01	6	1.0	1.0	10000.0	5.00	19.26	6.21	NO
350.	.1663E-01	6	1.0	1.0	10000.0	5.00	20.89	6.91	NO
400.	.1470E-01	6	1.0	1.0	10000.0	5.00	22.51	7.60	NO
450.	.1305E-01	6	1.0	1.0	10000.0	5.00	24.12	8.26	NO
460.	.1276E-01	6	1.0	1.0	10000.0	5.00	24.44	8.40	NO
500.	.1166E-01	6	1.0	1.0	10000.0	5.00	25.72	8.92	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.2926E-01	50.	0.

****

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Wistaria Ranch - Source 6

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	VOLUME
EMISSION RATE (G/S)	=	.145000E-02
SOURCE HEIGHT (M)	=	5.0000
INIT. LATERAL DIMEN (M)	=	126.7200
INIT. VERTICAL DIMEN (M)	=	1.1600
RECEPTOR HEIGHT (M)	=	2.0000
URBAN/RURAL OPTION	=	RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.0000	0	.0	.0	.0	.00	.00	.00	
100.	.0000	0	.0	.0	.0	.00	.00	.00	
150.	.0000	0	.0	.0	.0	.00	.00	.00	
200.	.0000	0	.0	.0	.0	.00	.00	.00	
250.	.0000	0	.0	.0	.0	.00	.00	.00	
300.	.3986	6	1.0	1.0	10000.0	5.00	132.40	6.21	NO
350.	.3768	6	1.0	1.0	10000.0	5.00	133.72	6.91	NO
400.	.3552	6	1.0	1.0	10000.0	5.00	135.04	7.60	NO
450.	.3348	6	1.0	1.0	10000.0	5.00	136.36	8.26	NO
500.	.3157	6	1.0	1.0	10000.0	5.00	137.68	8.92	NO
730.	.2505	6	1.0	1.0	10000.0	5.00	143.73	11.53	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.3986	300.	0.

****

Project Characteristics -

Land Use - Estimated acreage based on most recent project description

Construction Phase - Estimated construction schedule provided by project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Equipment estimates based on total construction equipment divided by number of construction days

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Trips and VMT - Construction worker trips based on a maximum of 350 workers per day (525 ADT including carpools). Haul trucks based on a maximum of 46 trips per day.

On-road Fugitive Dust - Assumes travel on paved roads

Grading - Estimated disturbed acreage based on project area and construction schedule

Vehicle Trips - Does not include estimates of operational emissions.

Vechicle Emission Factors -

Vechicle Emission Factors -

Vechicle Emission Factors -

Area Coating -

Water And Wastewater -

Construction Off-road Equipment Mitigation - Includes mitigation to Tier 3 engines for all equipment greater than 50 hp.

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	100
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	28.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	155,000.00	79.00
tblConstructionPhase	NumDays	155,000.00	348.00
tblConstructionPhase	NumDays	155,000.00	168.00
tblConstructionPhase	NumDays	155,000.00	149.00
tblConstructionPhase	NumDays	155,000.00	240.00
tblConstructionPhase	NumDays	155,000.00	242.00
tblConstructionPhase	NumDays	6,000.00	23.00
tblConstructionPhase	NumDays	6,000.00	195.00
tblConstructionPhase	PhaseEndDate	3/21/2017	4/29/2016

tblConstructionPhase	PhaseEndDate	8/30/2017	11/30/2016
tblConstructionPhase	PhaseEndDate	7/24/2017	3/31/2016
tblConstructionPhase	PhaseEndDate	12/23/2016	4/30/2016
tblConstructionPhase	PhaseEndDate	9/1/2017	10/31/2016
tblConstructionPhase	PhaseEndDate	10/4/2017	11/30/2016
tblConstructionPhase	PhaseEndDate	12/22/2016	5/30/2016
tblConstructionPhase	PhaseEndDate	3/30/2017	9/30/2016
tblConstructionPhase	PhaseStartDate	12/1/2016	1/12/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	8/1/2015
tblConstructionPhase	PhaseStartDate	12/1/2016	8/11/2015
tblConstructionPhase	PhaseStartDate	5/31/2016	10/6/2015
tblConstructionPhase	PhaseStartDate	10/1/2016	12/1/2015
tblConstructionPhase	PhaseStartDate	11/1/2016	12/29/2015
tblConstructionPhase	PhaseStartDate	4/1/2016	9/8/2015
tblConstructionPhase	PhaseStartDate	5/1/2016	11/3/2015
tblGrading	AcresOfGrading	1,170.00	2,793.00
tblLandUse	LotAcreage	0.00	2,793.00
tblOffRoadEquipment	HorsePower	226.00	200.00
tblOffRoadEquipment	HorsePower	226.00	200.00
tblOffRoadEquipment	HorsePower	226.00	500.00
tblOffRoadEquipment	HorsePower	226.00	220.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	62.00	110.00
tblOffRoadEquipment	HorsePower	78.00	75.00
tblOffRoadEquipment	HorsePower	205.00	45.00

tblOffRoadEquipment	HorsePower	162.00	45.00
tblOffRoadEquipment	HorsePower	174.00	200.00
tblOffRoadEquipment	HorsePower	122.00	250.00
tblOffRoadEquipment	HorsePower	400.00	350.00
tblOffRoadEquipment	HorsePower	400.00	300.00
tblOffRoadEquipment	HorsePower	400.00	300.00
tblOffRoadEquipment	HorsePower	400.00	180.00
tblOffRoadEquipment	HorsePower	400.00	350.00
tblOffRoadEquipment	HorsePower	400.00	210.00
tblOffRoadEquipment	HorsePower	8.00	100.00
tblOffRoadEquipment	HorsePower	8.00	15.00
tblOffRoadEquipment	HorsePower	100.00	75.00
tblOffRoadEquipment	HorsePower	100.00	75.00
tblOffRoadEquipment	HorsePower	100.00	75.00
tblOffRoadEquipment	HorsePower	100.00	75.00
tblOffRoadEquipment	HorsePower	361.00	300.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	80.00	100.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	12.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Transmission Line
tblOffRoadEquipment	PhaseName		Miscellaneous
tblOffRoadEquipment	PhaseName		Post Installation
tblOffRoadEquipment	PhaseName		Below Grade Electrical
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Miscellaneous
tblOffRoadEquipment	PhaseName		Miscellaneous
tblOffRoadEquipment	PhaseName		Transmission Line
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Miscellaneous

tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Post Installation
tblOffRoadEquipment	PhaseName		Above Grade Electrical
tblOffRoadEquipment	PhaseName		Module Installation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Below Grade Electrical
tblOffRoadEquipment	PhaseName		Below Grade Electrical
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
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tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
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tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00

tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
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tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
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tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00

tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripLength	7.30	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	5.00
tblTripsAndVMT	WorkerTripNumber	0.00	58.00
tblTripsAndVMT	WorkerTripNumber	108.00	58.00
tblTripsAndVMT	WorkerTripNumber	0.00	58.00
tblTripsAndVMT	WorkerTripNumber	0.00	58.00
tblTripsAndVMT	WorkerTripNumber	50.00	58.00
tblTripsAndVMT	WorkerTripNumber	0.00	58.00
tblTripsAndVMT	WorkerTripNumber	25.00	58.00
tblTripsAndVMT	WorkerTripNumber	0.00	58.00
tblTripsAndVMT	WorkerTripNumber	0.00	58.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	41.7887	405.5505	346.7006	0.5342	29.3564	17.1410	46.4974	5.3952	15.7816	21.1768	0.0000	52,533.6200	52,533.6200	12.7942	0.0000	52,802.2985
2016	41.3706	394.3645	349.5563	0.5682	31.0702	16.5870	47.6572	5.8506	15.2710	21.1216	0.0000	54,684.1922	54,684.1922	13.2741	0.0000	54,962.9484
Total	**83.1593**	**799.9150**	**696.2569**	**1.1024**	**60.4266**	**33.7280**	**94.1546**	**11.2457**	**31.0526**	**42.2983**	**0.0000**	**107,217.8122**	**107,217.8122**	**26.0683**	**0.0000**	**107,765.2469**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	21.4907	211.1880	383.1034	0.5342	19.9768	9.5046	29.4814	4.3824	9.3199	13.7022	0.0000	52,533.6200	52,533.6200	12.7942	0.0000	52,802.2985
2016	21.8996	218.2430	393.3851	0.5682	21.6906	9.8129	31.5035	4.8378	9.6282	14.4660	0.0000	54,684.1921	54,684.1921	13.2741	0.0000	54,962.9484
Total	**43.3903**	**429.4310**	**776.4885**	**1.1024**	**41.6674**	**19.3175**	**60.9849**	**9.2202**	**18.9481**	**28.1682**	**0.0000**	**107,217.8121**	**107,217.8121**	**26.0683**	**0.0000**	**107,765.2469**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**47.82**	**46.32**	**-11.52**	**0.00**	**31.04**	**42.73**	**35.23**	**18.01**	**38.98**	**33.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0285	2.8000e-003	0.2925	2.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003		0.6113	0.6113	1.7300e-003		0.6476
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0285**	**2.8000e-003**	**0.2925**	**2.0000e-005**	**0.0000**	**1.0600e-003**	**1.0600e-003**	**0.0000**	**1.0600e-003**	**1.0600e-003**		**0.6113**	**0.6113**	**1.7300e-003**	**0.0000**	**0.6476**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0285	2.8000e-003	0.2925	2.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003		0.6113	0.6113	1.7300e-003		0.6476
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0285**	**2.8000e-003**	**0.2925**	**2.0000e-005**	**0.0000**	**1.0600e-003**	**1.0600e-003**	**0.0000**	**1.0600e-003**	**1.0600e-003**		**0.6113**	**0.6113**	**1.7300e-003**	**0.0000**	**0.6476**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization	Site Preparation	7/1/2015	7/31/2015	5	23	
2	Site Preparation	Site Preparation	8/1/2015	4/29/2016	5	195	
3	Miscellaneous	Building Construction	8/1/2015	11/30/2016	5	348	
4	Substation	Building Construction	8/11/2015	3/31/2016	5	168	
5	Post Installation	Trenching	9/8/2015	5/30/2016	5	190	
6	Transmission Line	Building Construction	10/6/2015	4/30/2016	5	149	
7	Below Grade Electrical	Trenching	11/3/2015	9/30/2016	5	239	
8	Above Grade Electrical	Building Construction	12/1/2015	10/31/2016	5	240	
9	Module Installation	Building Construction	12/29/2015	11/30/2016	5	242	
10	O&M Building	Building Construction	1/12/2016	4/29/2016	5	79	

Acres of Grading (Site Preparation Phase): 2793

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Mobilization	Off-Highway Trucks	5	2.00	350	0.38

Site Preparation	Graders	8	8.00	200	0.41
Site Preparation	Off-Highway Tractors	6	8.00	250	0.44
Site Preparation	Off-Highway Trucks	8	8.00	300	0.38
Site Preparation	Off-Highway Trucks	5	4.00	300	0.38
Site Preparation	Plate Compactors	6	3.00	100	0.43
Site Preparation	Rough Terrain Forklifts	2	2.00	75	0.40
Site Preparation	Scrapers	4	4.00	300	0.48
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	150	0.37
Miscellaneous	Air Compressors	2	2.00	75	0.48
Miscellaneous	Generator Sets	5	8.00	5	0.74
Miscellaneous	Off-Highway Trucks	1	1.00	180	0.38
Miscellaneous	Off-Highway Trucks	1	2.00	350	0.38
Miscellaneous	Plate Compactors	7	1.00	15	0.43
Substation	Cranes	2	5.00	200	0.29
Substation	Tractors/Loaders/Backhoes	2	7.00	150	0.37
Post Installation	Bore/Drill Rigs	12	8.00	45	0.50
Post Installation	Rough Terrain Forklifts	8	7.00	75	0.40
Transmission Line	Aerial Lifts	2	2.00	110	0.31
Transmission Line	Cranes	1	2.00	500	0.29
Transmission Line	Cranes	1	2.00	220	0.29
Transmission Line	Off-Highway Trucks	2	2.00	210	0.38
Below Grade Electrical	Excavators	4	7.00	45	0.38
Below Grade Electrical	Tractors/Loaders/Backhoes	4	7.00	150	0.37
Below Grade Electrical	Trenchers	2	4.00	100	0.50
Above Grade Electrical	Rough Terrain Forklifts	3	2.00	75	0.40
Module Installation	Rough Terrain Forklifts	15	2.00	75	0.40
O&M Building	Cranes	2	5.00	200	0.29
O&M Building	Tractors/Loaders/Backhoes	2	7.00	150	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Mobilization	5	5.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	43	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Miscellaneous	16	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Substation	4	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Post Installation	20	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Transmission Line	6	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Below Grade Electrical	10	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Above Grade Electrical	3	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Module Installation	15	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
O&M Building	4	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Mobilization - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.1273	13.2766	5.9719	0.0144		0.5071	0.5071		0.4666	0.4666		1,512.5249	1,512.5249	0.4516		1,522.0075
Total	**1.1273**	**13.2766**	**5.9719**	**0.0144**	**0.0000**	**0.5071**	**0.5071**	**0.0000**	**0.4666**	**0.4666**		**1,512.5249**	**1,512.5249**	**0.4516**		**1,522.0075**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.7100e-003	0.1054	0.0770	3.0000e-004	7.6000e-003	2.6100e-003	0.0102	2.0800e-003	2.4000e-003	4.4800e-003		30.2875	30.2875	1.8000e-004		30.2912
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0874	0.1581	1.6648	1.7100e-003	0.1520	1.0300e-003	0.1530	0.0403	9.4000e-004	0.0412		141.7361	141.7361	0.0117		141.9820
Total	**0.0941**	**0.2634**	**1.7418**	**2.0100e-003**	**0.1596**	**3.6400e-003**	**0.1632**	**0.0424**	**3.3400e-003**	**0.0457**		**172.0236**	**172.0236**	**0.0119**		**172.2733**

3.2 Mobilization - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3519	6.8026	7.6236	0.0144		0.2580	0.2580		0.2580	0.2580	0.0000	1,512.5249	1,512.5249	0.4516		1,522.0075
Total	**0.3519**	**6.8026**	**7.6236**	**0.0144**	**0.0000**	**0.2580**	**0.2580**	**0.0000**	**0.2580**	**0.2580**	**0.0000**	**1,512.5249**	**1,512.5249**	**0.4516**		**1,522.0075**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.7100e-003	0.1054	0.0770	3.0000e-004	7.6000e-003	2.6100e-003	0.0102	2.0800e-003	2.4000e-003	4.4800e-003		30.2875	30.2875	1.8000e-004		30.2912
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0874	0.1581	1.6648	1.7100e-003	0.1520	1.0300e-003	0.1530	0.0403	9.4000e-004	0.0412		141.7361	141.7361	0.0117		141.9820
Total	**0.0941**	**0.2634**	**1.7418**	**2.0100e-003**	**0.1596**	**3.6400e-003**	**0.1632**	**0.0424**	**3.3400e-003**	**0.0457**		**172.0236**	**172.0236**	**0.0119**		**172.2733**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.1896	0.0000	15.1896	1.6401	0.0000	1.6401			0.0000			0.0000
Off-Road	21.4974	277.1830	111.5230	0.2623		10.3847	10.3847		9.5539	9.5539		27,528.0297	27,528.0297	8.2183		27,700.6133
Total	**21.4974**	**277.1830**	**111.5230**	**0.2623**	**15.1896**	**10.3847**	**25.5743**	**1.6401**	**9.5539**	**11.1940**		**27,528.0297**	**27,528.0297**	**8.2183**		**27,700.6133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.9000e-004	0.0124	9.0900e-003	4.0000e-005	1.4300e-003	3.1000e-004	1.7400e-003	3.8000e-004	2.8000e-004	6.6000e-004		3.5724	3.5724	2.0000e-005		3.5728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0150**	**1.8458**	**19.3208**	**0.0199**	**1.7645**	**0.0123**	**1.7768**	**0.4678**	**0.0112**	**0.4791**		**1,647.7113**	**1,647.7113**	**0.1359**		**1,650.5644**

3.3 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8100	0.0000	5.8100	0.6274	0.0000	0.6274			0.0000			0.0000
Off-Road	6.4297	124.4194	143.9090	0.2623		4.8366	4.8366		4.8366	4.8366	0.0000	27,528.0297	27,528.0297	8.2183		27,700.6133
Total	**6.4297**	**124.4194**	**143.9090**	**0.2623**	**5.8100**	**4.8366**	**10.6467**	**0.6274**	**4.8366**	**5.4640**	**0.0000**	**27,528.0297**	**27,528.0297**	**8.2183**		**27,700.6133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.9000e-004	0.0124	9.0900e-003	4.0000e-005	1.4300e-003	3.1000e-004	1.7400e-003	3.8000e-004	2.8000e-004	6.6000e-004		3.5724	3.5724	2.0000e-005		3.5728
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0150**	**1.8458**	**19.3208**	**0.0199**	**1.7645**	**0.0123**	**1.7768**	**0.4678**	**0.0112**	**0.4791**		**1,647.7113**	**1,647.7113**	**0.1359**		**1,650.5644**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.1896	0.0000	15.1896	1.6401	0.0000	1.6401			0.0000			0.0000
Off-Road	20.1023	255.7713	105.6717	0.2621		9.4456	9.4456		8.6900	8.6900		27,226.4735	27,226.4735	8.2125		27,398.9354
Total	**20.1023**	**255.7713**	**105.6717**	**0.2621**	**15.1896**	**9.4456**	**24.6353**	**1.6401**	**8.6900**	**10.3301**		**27,226.4735**	**27,226.4735**	**8.2125**		**27,398.9354**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.7000e-004	0.0106	8.2200e-003	3.0000e-005	1.7600e-003	2.6000e-004	2.0200e-003	4.6000e-004	2.4000e-004	7.0000e-004		3.5254	3.5254	2.0000e-005		3.5258
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8979**	**1.6653**	**17.2067**	**0.0198**	**1.7649**	**0.0114**	**1.7763**	**0.4679**	**0.0105**	**0.4784**		**1,582.2942**	**1,582.2942**	**0.1245**		**1,584.9081**

3.3 Site Preparation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8100	0.0000	5.8100	0.6274	0.0000	0.6274			0.0000			0.0000
Off-Road	6.4297	124.4194	143.9090	0.2621		4.8366	4.8366		4.8366	4.8366	0.0000	27,226.4735	27,226.4735	8.2125		27,398.9354
Total	**6.4297**	**124.4194**	**143.9090**	**0.2621**	**5.8100**	**4.8366**	**10.6467**	**0.6274**	**4.8366**	**5.4640**	**0.0000**	**27,226.4735**	**27,226.4735**	**8.2125**		**27,398.9354**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.7000e-004	0.0106	8.2200e-003	3.0000e-005	1.7600e-003	2.6000e-004	2.0200e-003	4.6000e-004	2.4000e-004	7.0000e-004		3.5254	3.5254	2.0000e-005		3.5258
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8979**	**1.6653**	**17.2067**	**0.0198**	**1.7649**	**0.0114**	**1.7763**	**0.4679**	**0.0105**	**0.4784**		**1,582.2942**	**1,582.2942**	**0.1245**		**1,584.9081**

3.4 Miscellaneous - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6233	5.5058	3.0453	6.3100e-003		0.2932	0.2932		0.2824	0.2824		616.0638	616.0638	0.1425		619.0570
Total	**0.6233**	**5.5058**	**3.0453**	**6.3100e-003**		**0.2932**	**0.2932**		**0.2824**	**0.2824**		**616.0638**	**616.0638**	**0.1425**		**619.0570**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4000e-004	6.9600e-003	5.0900e-003	2.0000e-005	1.3400e-003	1.7000e-004	1.5100e-003	3.4000e-004	1.6000e-004	5.0000e-004		2.0018	2.0018	1.0000e-005		2.0020
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0146**	**1.8403**	**19.3168**	**0.0199**	**1.7645**	**0.0122**	**1.7766**	**0.4678**	**0.0111**	**0.4789**		**1,646.1407**	**1,646.1407**	**0.1359**		**1,648.9936**

3.4 Miscellaneous - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1924	2.9925	3.4367	6.3100e-003		0.1419	0.1419		0.1419	0.1419	0.0000	616.0638	616.0638	0.1425		619.0570
Total	**0.1924**	**2.9925**	**3.4367**	**6.3100e-003**		**0.1419**	**0.1419**		**0.1419**	**0.1419**	**0.0000**	**616.0638**	**616.0638**	**0.1425**		**619.0570**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4000e-004	6.9600e-003	5.0900e-003	2.0000e-005	1.3400e-003	1.7000e-004	1.5100e-003	3.4000e-004	1.6000e-004	5.0000e-004		2.0018	2.0018	1.0000e-005		2.0020
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0146**	**1.8403**	**19.3168**	**0.0199**	**1.7645**	**0.0122**	**1.7766**	**0.4678**	**0.0111**	**0.4789**		**1,646.1407**	**1,646.1407**	**0.1359**		**1,648.9936**

3.4 Miscellaneous - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5753	5.0346	2.9335	6.3100e-003		0.2629	0.2629		0.2533	0.2533		611.7514	611.7514	0.1402		614.6954
Total	**0.5753**	**5.0346**	**2.9335**	**6.3100e-003**		**0.2629**	**0.2629**		**0.2533**	**0.2533**		**611.7514**	**611.7514**	**0.1402**		**614.6954**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.8000e-004	5.9200e-003	4.6100e-003	2.0000e-005	6.8000e-004	1.5000e-004	8.2000e-004	1.8000e-004	1.3000e-004	3.1000e-004		1.9755	1.9755	1.0000e-005		1.9757
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8976**	**1.6607**	**17.2030**	**0.0198**	**1.7638**	**0.0113**	**1.7751**	**0.4676**	**0.0104**	**0.4780**		**1,580.7443**	**1,580.7443**	**0.1245**		**1,583.3580**

3.4 Miscellaneous - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1924	2.9925	3.4367	6.3100e-003		0.1419	0.1419		0.1419	0.1419	0.0000	611.7514	611.7514	0.1402		614.6954
Total	**0.1924**	**2.9925**	**3.4367**	**6.3100e-003**		**0.1419**	**0.1419**		**0.1419**	**0.1419**	**0.0000**	**611.7514**	**611.7514**	**0.1402**		**614.6954**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.8000e-004	5.9200e-003	4.6100e-003	2.0000e-005	6.8000e-004	1.5000e-004	8.2000e-004	1.8000e-004	1.3000e-004	3.1000e-004		1.9755	1.9755	1.0000e-005		1.9757
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8976**	**1.6607**	**17.2030**	**0.0198**	**1.7638**	**0.0113**	**1.7751**	**0.4676**	**0.0104**	**0.4780**		**1,580.7443**	**1,580.7443**	**0.1245**		**1,583.3580**

3.5 Substation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5429	18.0296	8.9701	0.0145		0.8634	0.8634		0.7943	0.7943		1,526.6261	1,526.6261	0.4558		1,536.1971
Total	**1.5429**	**18.0296**	**8.9701**	**0.0145**		**0.8634**	**0.8634**		**0.7943**	**0.7943**		**1,526.6261**	**1,526.6261**	**0.4558**		**1,536.1971**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.2000e-004	0.0144	0.0106	4.0000e-005	1.5400e-003	3.6000e-004	1.8900e-003	4.1000e-004	3.3000e-004	7.4000e-004		4.1465	4.1465	2.0000e-005		4.1470
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0151**	**1.8478**	**19.3223**	**0.0199**	**1.7647**	**0.0124**	**1.7770**	**0.4679**	**0.0113**	**0.4791**		**1,648.2855**	**1,648.2855**	**0.1359**		**1,651.1386**

3.5 Substation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3590	6.9407	9.6626	0.0145		0.3044	0.3044		0.3044	0.3044	0.0000	1,526.6261	1,526.6261	0.4558		1,536.1971
Total	**0.3590**	**6.9407**	**9.6626**	**0.0145**		**0.3044**	**0.3044**		**0.3044**	**0.3044**	**0.0000**	**1,526.6261**	**1,526.6261**	**0.4558**		**1,536.1971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	9.2000e-004	0.0144	0.0106	4.0000e-005	1.5400e-003	3.6000e-004	1.8900e-003	4.1000e-004	3.3000e-004	7.4000e-004		4.1465	4.1465	2.0000e-005		4.1470
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0151**	**1.8478**	**19.3223**	**0.0199**	**1.7647**	**0.0124**	**1.7770**	**0.4679**	**0.0113**	**0.4791**		**1,648.2855**	**1,648.2855**	**0.1359**		**1,651.1386**

3.5 Substation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4632	16.9395	8.8387	0.0145		0.8085	0.8085		0.7438	0.7438		1,509.4898	1,509.4898	0.4553		1,519.0514
Total	**1.4632**	**16.9395**	**8.8387**	**0.0145**		**0.8085**	**0.8085**		**0.7438**	**0.7438**		**1,509.4898**	**1,509.4898**	**0.4553**		**1,519.0514**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.8000e-004	0.0123	9.5400e-003	4.0000e-005	2.2900e-003	3.0000e-004	2.5900e-003	5.9000e-004	2.8000e-004	8.7000e-004		4.0920	4.0920	2.0000e-005		4.0925
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8980**	**1.6670**	**17.2080**	**0.0198**	**1.7654**	**0.0115**	**1.7769**	**0.4680**	**0.0105**	**0.4786**		**1,582.8608**	**1,582.8608**	**0.1245**		**1,585.4748**

3.5 Substation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3590	6.9407	9.6626	0.0145		0.3044	0.3044		0.3044	0.3044	0.0000	1,509.4898	1,509.4898	0.4553		1,519.0514
Total	**0.3590**	**6.9407**	**9.6626**	**0.0145**		**0.3044**	**0.3044**		**0.3044**	**0.3044**	**0.0000**	**1,509.4898**	**1,509.4898**	**0.4553**		**1,519.0514**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.8000e-004	0.0123	9.5400e-003	4.0000e-005	2.2900e-003	3.0000e-004	2.5900e-003	5.9000e-004	2.8000e-004	8.7000e-004		4.0920	4.0920	2.0000e-005		4.0925
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8980**	**1.6670**	**17.2080**	**0.0198**	**1.7654**	**0.0115**	**1.7769**	**0.4680**	**0.0105**	**0.4786**		**1,582.8608**	**1,582.8608**	**0.1245**		**1,585.4748**

3.6 Post Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.2839	41.1072	35.0137	0.0446		2.7222	2.7222		2.5045	2.5045		4,683.2205	4,683.2205	1.3981		4,712.5814
Total	**5.2839**	**41.1072**	**35.0137**	**0.0446**		**2.7222**	**2.7222**		**2.5045**	**2.5045**		**4,683.2205**	**4,683.2205**	**1.3981**		**4,712.5814**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.1000e-004	0.0128	9.3300e-003	4.0000e-005	1.8200e-003	3.2000e-004	2.1300e-003	4.7000e-004	2.9000e-004	7.6000e-004		3.6664	3.6664	2.0000e-005		3.6668
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0150**	**1.8461**	**19.3211**	**0.0199**	**1.7649**	**0.0123**	**1.7772**	**0.4679**	**0.0112**	**0.4792**		**1,647.8053**	**1,647.8053**	**0.1359**		**1,650.6584**

3.6 Post Installation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4776	35.4033	36.2501	0.0446		2.5171	2.5171		2.3726	2.3726	0.0000	4,683.2205	4,683.2205	1.3981		4,712.5814
Total	**4.4776**	**35.4033**	**36.2501**	**0.0446**		**2.5171**	**2.5171**		**2.3726**	**2.3726**	**0.0000**	**4,683.2205**	**4,683.2205**	**1.3981**		**4,712.5814**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.1000e-004	0.0128	9.3300e-003	4.0000e-005	1.8200e-003	3.2000e-004	2.1300e-003	4.7000e-004	2.9000e-004	7.6000e-004		3.6664	3.6664	2.0000e-005		3.6668
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0150**	**1.8461**	**19.3211**	**0.0199**	**1.7649**	**0.0123**	**1.7772**	**0.4679**	**0.0112**	**0.4792**		**1,647.8053**	**1,647.8053**	**0.1359**		**1,650.6584**

3.6 Post Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.2566	39.4526	35.2182	0.0446		2.6115	2.6115		2.4026	2.4026		4,636.7961	4,636.7961	1.3986		4,666.1672
Total	**5.2566**	**39.4526**	**35.2182**	**0.0446**		**2.6115**	**2.6115**		**2.4026**	**2.4026**		**4,636.7961**	**4,636.7961**	**1.3986**		**4,666.1672**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.9000e-004	0.0108	8.4400e-003	4.0000e-005	1.4600e-003	2.7000e-004	1.7300e-003	3.8000e-004	2.5000e-004	6.3000e-004		3.6182	3.6182	2.0000e-005		3.6186
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8979**	**1.6656**	**17.2069**	**0.0198**	**1.7646**	**0.0114**	**1.7760**	**0.4678**	**0.0105**	**0.4783**		**1,582.3870**	**1,582.3870**	**0.1245**		**1,585.0009**

3.6 Post Installation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5840	35.3783	36.5452	0.0446		2.5332	2.5332		2.3875	2.3875	0.0000	4,636.7961	4,636.7961	1.3986		4,666.1672
Total	**4.5840**	**35.3783**	**36.5452**	**0.0446**		**2.5332**	**2.5332**		**2.3875**	**2.3875**	**0.0000**	**4,636.7961**	**4,636.7961**	**1.3986**		**4,666.1672**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.9000e-004	0.0108	8.4400e-003	4.0000e-005	1.4600e-003	2.7000e-004	1.7300e-003	3.8000e-004	2.5000e-004	6.3000e-004		3.6182	3.6182	2.0000e-005		3.6186
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8979**	**1.6656**	**17.2069**	**0.0198**	**1.7646**	**0.0114**	**1.7760**	**0.4678**	**0.0105**	**0.4783**		**1,582.3870**	**1,582.3870**	**0.1245**		**1,585.0009**

3.7 Transmission Line - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8748	10.6847	5.6785	9.3500e-003		0.4625	0.4625		0.4255	0.4255		982.1393	982.1393	0.2932		988.2967
Total	**0.8748**	**10.6847**	**5.6785**	**9.3500e-003**		**0.4625**	**0.4625**		**0.4255**	**0.4255**		**982.1393**	**982.1393**	**0.2932**		**988.2967**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0400e-003	0.0163	0.0119	5.0000e-005	2.3800e-003	4.0000e-004	2.7900e-003	6.2000e-004	3.7000e-004	9.9000e-004		4.6753	4.6753	3.0000e-005		4.6758
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0152**	**1.8496**	**19.3236**	**0.0199**	**1.7655**	**0.0124**	**1.7779**	**0.4681**	**0.0113**	**0.4794**		**1,648.8142**	**1,648.8142**	**0.1359**		**1,651.6674**

3.7 Transmission Line - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2310	4.5925	5.3360	9.3500e-003		0.2007	0.2007		0.2007	0.2007	0.0000	982.1393	982.1393	0.2932		988.2967
Total	**0.2310**	**4.5925**	**5.3360**	**9.3500e-003**		**0.2007**	**0.2007**		**0.2007**	**0.2007**	**0.0000**	**982.1393**	**982.1393**	**0.2932**		**988.2967**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0400e-003	0.0163	0.0119	5.0000e-005	2.3800e-003	4.0000e-004	2.7900e-003	6.2000e-004	3.7000e-004	9.9000e-004		4.6753	4.6753	3.0000e-005		4.6758
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0152**	**1.8496**	**19.3236**	**0.0199**	**1.7655**	**0.0124**	**1.7779**	**0.4681**	**0.0113**	**0.4794**		**1,648.8142**	**1,648.8142**	**0.1359**		**1,651.6674**

3.7 Transmission Line - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8219	9.9027	5.4239	9.3600e-003		0.4231	0.4231		0.3893	0.3893		972.0517	972.0517	0.2932		978.2090
Total	**0.8219**	**9.9027**	**5.4239**	**9.3600e-003**		**0.4231**	**0.4231**		**0.3893**	**0.3893**		**972.0517**	**972.0517**	**0.2932**		**978.2090**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8000e-004	0.0138	0.0108	5.0000e-005	1.8200e-003	3.4000e-004	2.1600e-003	4.8000e-004	3.1000e-004	7.9000e-004		4.6138	4.6138	2.0000e-005		4.6143
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8981**	**1.6686**	**17.2092**	**0.0199**	**1.7649**	**0.0115**	**1.7764**	**0.4679**	**0.0105**	**0.4785**		**1,583.3826**	**1,583.3826**	**0.1245**		**1,585.9966**

3.7 Transmission Line - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2310	4.5925	5.3360	9.3600e-003		0.2007	0.2007		0.2007	0.2007	0.0000	972.0517	972.0517	0.2932		978.2090
Total	**0.2310**	**4.5925**	**5.3360**	**9.3600e-003**		**0.2007**	**0.2007**		**0.2007**	**0.2007**	**0.0000**	**972.0517**	**972.0517**	**0.2932**		**978.2090**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.8000e-004	0.0138	0.0108	5.0000e-005	1.8200e-003	3.4000e-004	2.1600e-003	4.8000e-004	3.1000e-004	7.9000e-004		4.6138	4.6138	2.0000e-005		4.6143
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8981**	**1.6686**	**17.2092**	**0.0199**	**1.7649**	**0.0115**	**1.7764**	**0.4679**	**0.0105**	**0.4785**		**1,583.3826**	**1,583.3826**	**0.1245**		**1,585.9966**

3.8 Below Grade Electrical - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0431	28.0899	19.8933	0.0266		1.7278	1.7278		1.5895	1.5895		2,798.398 2	2,798.398 2	0.8354		2,815.942 4
Total	**3.0431**	**28.0899**	**19.8933**	**0.0266**		**1.7278**	**1.7278**		**1.5895**	**1.5895**		**2,798.398 2**	**2,798.398 2**	**0.8354**		**2,815.942 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.5000e-004	0.0101	7.4100e-003	3.0000e-005	3.2500e-003	2.5000e-004	3.5000e-003	8.2000e-004	2.3000e-004	1.0500e-003		2.9147	2.9147	2.0000e-005		2.9151
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.139 0	1,644.139 0	0.1358		1,646.991 6
Total	**1.0148**	**1.8435**	**19.3191**	**0.0199**	**1.7664**	**0.0123**	**1.7786**	**0.4683**	**0.0112**	**0.4795**		**1,647.053 7**	**1,647.053 7**	**0.1359**		**1,649.906 6**

3.8 Below Grade Electrical - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3960	15.5560	21.1376	0.0266		0.9486	0.9486		0.9169	0.9169	0.0000	2,798.3982	2,798.3982	0.8354		2,815.9424
Total	**1.3960**	**15.5560**	**21.1376**	**0.0266**		**0.9486**	**0.9486**		**0.9169**	**0.9169**	**0.0000**	**2,798.3982**	**2,798.3982**	**0.8354**		**2,815.9424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.5000e-004	0.0101	7.4100e-003	3.0000e-005	3.2500e-003	2.5000e-004	3.5000e-003	8.2000e-004	2.3000e-004	1.0500e-003		2.9147	2.9147	2.0000e-005		2.9151
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0148**	**1.8435**	**19.3191**	**0.0199**	**1.7664**	**0.0123**	**1.7786**	**0.4683**	**0.0112**	**0.4795**		**1,647.0537**	**1,647.0537**	**0.1359**		**1,649.9066**

3.8 Below Grade Electrical - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8887	26.1830	19.8074	0.0266		1.6164	1.6164		1.4871	1.4871		2,766.7922	2,766.7922	0.8346		2,784.3180
Total	**2.8887**	**26.1830**	**19.8074**	**0.0266**		**1.6164**	**1.6164**		**1.4871**	**1.4871**		**2,766.7922**	**2,766.7922**	**0.8346**		**2,784.3180**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	8.6200e-003	6.7100e-003	3.0000e-005	8.5000e-004	2.1000e-004	1.0700e-003	2.3000e-004	2.0000e-004	4.3000e-004		2.8764	2.8764	2.0000e-005		2.8767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8977**	**1.6634**	**17.2051**	**0.0198**	**1.7640**	**0.0114**	**1.7753**	**0.4677**	**0.0104**	**0.4781**		**1,581.6452**	**1,581.6452**	**0.1245**		**1,584.2590**

3.8 Below Grade Electrical - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3773	15.4570	21.1556	0.0266		0.9316	0.9316		0.9013	0.9013	0.0000	2,766.792 2	2,766.792 2	0.8346		2,784.318 0
Total	**1.3773**	**15.4570**	**21.1556**	**0.0266**		**0.9316**	**0.9316**		**0.9013**	**0.9013**	**0.0000**	**2,766.792 2**	**2,766.792 2**	**0.8346**		**2,784.318 0**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	8.6200e-003	6.7100e-003	3.0000e-005	8.5000e-004	2.1000e-004	1.0700e-003	2.3000e-004	2.0000e-004	4.3000e-004		2.8764	2.8764	2.0000e-005		2.8767
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.768 8	1,578.768 8	0.1245		1,581.382 3
Total	**0.8977**	**1.6634**	**17.2051**	**0.0198**	**1.7640**	**0.0114**	**1.7753**	**0.4677**	**0.0104**	**0.4781**		**1,581.645 2**	**1,581.645 2**	**0.1245**		**1,584.259 0**

3.9 Above Grade Electrical - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1340	1.6985	1.3358	1.9400e-003		0.0982	0.0982		0.0903	0.0903		203.2121	203.2121	0.0607		204.4861
Total	**0.1340**	**1.6985**	**1.3358**	**1.9400e-003**		**0.0982**	**0.0982**		**0.0903**	**0.0903**		**203.2121**	**203.2121**	**0.0607**		**204.4861**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-004	0.0101	7.3800e-003	3.0000e-005	5.9300e-003	2.5000e-004	6.1800e-003	1.4800e-003	2.3000e-004	1.7100e-003		2.9026	2.9026	2.0000e-005		2.9029
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0148**	**1.8434**	**19.3191**	**0.0199**	**1.7690**	**0.0123**	**1.7813**	**0.4689**	**0.0112**	**0.4801**		**1,647.0415**	**1,647.0415**	**0.1359**		**1,649.8945**

3.9 Above Grade Electrical - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0476	1.0873	1.4683	1.9400e-003		0.0762	0.0762		0.0762	0.0762	0.0000	203.2121	203.2121	0.0607		204.4861
Total	**0.0476**	**1.0873**	**1.4683**	**1.9400e-003**		**0.0762**	**0.0762**		**0.0762**	**0.0762**	**0.0000**	**203.2121**	**203.2121**	**0.0607**		**204.4861**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-004	0.0101	7.3800e-003	3.0000e-005	5.9300e-003	2.5000e-004	6.1800e-003	1.4800e-003	2.3000e-004	1.7100e-003		2.9026	2.9026	2.0000e-005		2.9029
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0148**	**1.8434**	**19.3191**	**0.0199**	**1.7690**	**0.0123**	**1.7813**	**0.4689**	**0.0112**	**0.4801**		**1,647.0415**	**1,647.0415**	**0.1359**		**1,649.8945**

3.9 Above Grade Electrical - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1197	1.5239	1.3261	1.9400e-003		0.0846	0.0846		0.0778	0.0778		201.2200	201.2200	0.0607		202.4946
Total	**0.1197**	**1.5239**	**1.3261**	**1.9400e-003**		**0.0846**	**0.0846**		**0.0778**	**0.0778**		**201.2200**	**201.2200**	**0.0607**		**202.4946**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	8.5800e-003	6.6800e-003	3.0000e-005	7.9000e-004	2.1000e-004	1.0000e-003	2.1000e-004	1.9000e-004	4.1000e-004		2.8644	2.8644	2.0000e-005		2.8647
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.768 8	1,578.768 8	0.1245		1,581.382 3
Total	**0.8977**	**1.6633**	**17.2051**	**0.0198**	**1.7639**	**0.0114**	**1.7753**	**0.4677**	**0.0104**	**0.4781**		**1,581.633 2**	**1,581.633 2**	**0.1245**		**1,584.247 0**

3.9 Above Grade Electrical - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0476	1.0873	1.4683	1.9400e-003		0.0762	0.0762		0.0762	0.0762	0.0000	201.2200	201.2200	0.0607		202.4946
Total	**0.0476**	**1.0873**	**1.4683**	**1.9400e-003**		**0.0762**	**0.0762**		**0.0762**	**0.0762**	**0.0000**	**201.2200**	**201.2200**	**0.0607**		**202.4946**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	8.5800e-003	6.6800e-003	3.0000e-005	7.9000e-004	2.1000e-004	1.0000e-003	2.1000e-004	1.9000e-004	4.1000e-004		2.8644	2.8644	2.0000e-005		2.8647
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8977**	**1.6633**	**17.2051**	**0.0198**	**1.7639**	**0.0114**	**1.7753**	**0.4677**	**0.0104**	**0.4781**		**1,581.6332**	**1,581.6332**	**0.1245**		**1,584.2470**

3.10 Module Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6701	8.4923	6.6791	9.6800e-003		0.4909	0.4909		0.4516	0.4516		1,016.0606	1,016.0606	0.3033		1,022.4307
Total	**0.6701**	**8.4923**	**6.6791**	**9.6800e-003**		**0.4909**	**0.4909**		**0.4516**	**0.4516**		**1,016.0606**	**1,016.0606**	**0.3033**		**1,022.4307**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-004	0.0100	7.3200e-003	3.0000e-005	0.0443	2.5000e-004	0.0445	0.0109	2.3000e-004	0.0111		2.8786	2.8786	2.0000e-005		2.8789
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0148**	**1.8433**	**19.3190**	**0.0199**	**1.8074**	**0.0123**	**1.8196**	**0.4783**	**0.0112**	**0.4895**		**1,647.0175**	**1,647.0175**	**0.1359**		**1,649.8705**

3.10 Module Installation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2381	5.4366	7.3414	9.6800e-003		0.3810	0.3810		0.3810	0.3810	0.0000	1,016.0606	1,016.0606	0.3033		1,022.4307
Total	**0.2381**	**5.4366**	**7.3414**	**9.6800e-003**		**0.3810**	**0.3810**		**0.3810**	**0.3810**	**0.0000**	**1,016.0606**	**1,016.0606**	**0.3033**		**1,022.4307**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-004	0.0100	7.3200e-003	3.0000e-005	0.0443	2.5000e-004	0.0445	0.0109	2.3000e-004	0.0111		2.8786	2.8786	2.0000e-005		2.8789
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0142	1.8333	19.3117	0.0198	1.7631	0.0120	1.7751	0.4675	0.0109	0.4784		1,644.1390	1,644.1390	0.1358		1,646.9916
Total	**1.0148**	**1.8433**	**19.3190**	**0.0199**	**1.8074**	**0.0123**	**1.8196**	**0.4783**	**0.0112**	**0.4895**		**1,647.0175**	**1,647.0175**	**0.1359**		**1,649.8705**

3.10 Module Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5984	7.6193	6.6305	9.6900e-003		0.4229	0.4229		0.3891	0.3891		1,006.1000	1,006.1000	0.3035		1,012.4730
Total	**0.5984**	**7.6193**	**6.6305**	**9.6900e-003**		**0.4229**	**0.4229**		**0.3891**	**0.3891**		**1,006.1000**	**1,006.1000**	**0.3035**		**1,012.4730**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.4000e-004	8.5100e-003	6.6200e-003	3.0000e-005	7.3000e-004	2.1000e-004	9.4000e-004	2.0000e-004	1.9000e-004	3.9000e-004		2.8407	2.8407	2.0000e-005		2.8411
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8977**	**1.6633**	**17.2051**	**0.0198**	**1.7638**	**0.0114**	**1.7752**	**0.4677**	**0.0104**	**0.4781**		**1,581.6095**	**1,581.6095**	**0.1245**		**1,584.2234**

3.10 Module Installation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2381	5.4366	7.3414	9.6900e-003		0.3810	0.3810		0.3810	0.3810	0.0000	1,006.1000	1,006.1000	0.3035		1,012.4730
Total	**0.2381**	**5.4366**	**7.3414**	**9.6900e-003**		**0.3810**	**0.3810**		**0.3810**	**0.3810**	**0.0000**	**1,006.1000**	**1,006.1000**	**0.3035**		**1,012.4730**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.4000e-004	8.5100e-003	6.6200e-003	3.0000e-005	7.3000e-004	2.1000e-004	9.4000e-004	2.0000e-004	1.9000e-004	3.9000e-004		2.8407	2.8407	2.0000e-005		2.8411
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8977**	**1.6633**	**17.2051**	**0.0198**	**1.7638**	**0.0114**	**1.7752**	**0.4677**	**0.0104**	**0.4781**		**1,581.6095**	**1,581.6095**	**0.1245**		**1,584.2234**

3.11 O&M Building - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4632	16.9395	8.8387	0.0145		0.8085	0.8085		0.7438	0.7438		1,509.4898	1,509.4898	0.4553		1,519.0514
Total	**1.4632**	**16.9395**	**8.8387**	**0.0145**		**0.8085**	**0.8085**		**0.7438**	**0.7438**		**1,509.4898**	**1,509.4898**	**0.4553**		**1,519.0514**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6600e-003	0.0261	0.0203	9.0000e-005	2.2100e-003	6.4000e-004	2.8600e-003	6.1000e-004	5.9000e-004	1.2000e-003		8.7020	8.7020	5.0000e-005		8.7030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8989**	**1.6808**	**17.2187**	**0.0199**	**1.7653**	**0.0118**	**1.7771**	**0.4681**	**0.0108**	**0.4789**		**1,587.4708**	**1,587.4708**	**0.1245**		**1,590.0853**

3.11 O&M Building - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3590	6.9407	9.6626	0.0145		0.3044	0.3044		0.3044	0.3044	0.0000	1,509.4898	1,509.4898	0.4553		1,519.0514
Total	**0.3590**	**6.9407**	**9.6626**	**0.0145**		**0.3044**	**0.3044**		**0.3044**	**0.3044**	**0.0000**	**1,509.4898**	**1,509.4898**	**0.4553**		**1,519.0514**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6600e-003	0.0261	0.0203	9.0000e-005	2.2100e-003	6.4000e-004	2.8600e-003	6.1000e-004	5.9000e-004	1.2000e-003		8.7020	8.7020	5.0000e-005		8.7030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8972	1.6548	17.1984	0.0198	1.7631	0.0112	1.7743	0.4675	0.0102	0.4777		1,578.7688	1,578.7688	0.1245		1,581.3823
Total	**0.8989**	**1.6808**	**17.2187**	**0.0199**	**1.7653**	**0.0118**	**1.7771**	**0.4681**	**0.0108**	**0.4789**		**1,587.4708**	**1,587.4708**	**0.1245**		**1,590.0853**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.452463	0.070907	0.165532	0.163183	0.043777	0.005595	0.012812	0.078576	0.001869	0.000152	0.002393	0.000687	0.002054

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0285	2.8000e-003	0.2925	2.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003		0.6113	0.6113	1.7300e-003		0.6476
Unmitigated	0.0285	2.8000e-003	0.2925	2.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003		0.6113	0.6113	1.7300e-003		0.6476

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0285	2.8000e-003	0.2925	2.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003		0.6113	0.6113	1.7300e-003		0.6476
Total	**0.0285**	**2.8000e-003**	**0.2925**	**2.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**		**0.6113**	**0.6113**	**1.7300e-003**		**0.6476**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0285	2.8000e-003	0.2925	2.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003		0.6113	0.6113	1.7300e-003		0.6476
Total	**0.0285**	**2.8000e-003**	**0.2925**	**2.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**		**0.6113**	**0.6113**	**1.7300e-003**		**0.6476**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Wistaria Ranch Solar Energy Center

Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	2,793.00	User Defined Unit	2,793.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2016
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Estimated acreage based on most recent project description

Construction Phase - Estimated construction schedule provided by project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Equipment estimates based on total construction equipment divided by number of construction days

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Off-road Equipment - Estimated construction equipment per project applicant

Trips and VMT - Construction worker trips based on a maximum of 350 workers per day (525 ADT including carpools). Haul trucks based on a maximum of 46 trips per day.

On-road Fugitive Dust - Assumes travel on paved roads

Grading - Estimated disturbed acreage based on project area and construction schedule

Vehicle Trips - Does not include estimates of operational emissions.

Vechicle Emission Factors -

Vechicle Emission Factors -

Vechicle Emission Factors -

Area Coating -

Water And Wastewater -

Construction Off-road Equipment Mitigation - Includes mitigation to Tier 3 engines for all equipment greater than 50 hp.

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	100
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	28.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	155,000.00	168.00
tblConstructionPhase	NumDays	155,000.00	149.00
tblConstructionPhase	NumDays	155,000.00	240.00
tblConstructionPhase	NumDays	155,000.00	242.00
tblConstructionPhase	NumDays	6,000.00	23.00
tblConstructionPhase	NumDays	6,000.00	195.00
tblConstructionPhase	PhaseEndDate	3/21/2017	4/29/2016

tblConstructionPhase	PhaseEndDate	8/30/2017	11/30/2016
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tblConstructionPhase	PhaseEndDate	12/23/2016	4/30/2016
tblConstructionPhase	PhaseEndDate	9/1/2017	10/31/2016
tblConstructionPhase	PhaseEndDate	10/4/2017	11/30/2016
tblConstructionPhase	PhaseEndDate	12/22/2016	5/30/2016
tblConstructionPhase	PhaseEndDate	3/30/2017	9/30/2016
tblConstructionPhase	PhaseStartDate	12/1/2016	1/12/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	8/1/2015
tblConstructionPhase	PhaseStartDate	12/1/2016	8/11/2015
tblConstructionPhase	PhaseStartDate	5/31/2016	10/6/2015
tblConstructionPhase	PhaseStartDate	10/1/2016	12/1/2015
tblConstructionPhase	PhaseStartDate	11/1/2016	12/29/2015
tblConstructionPhase	PhaseStartDate	4/1/2016	9/8/2015
tblConstructionPhase	PhaseStartDate	5/1/2016	11/3/2015
tblGrading	AcresOfGrading	1,170.00	2,793.00
tblLandUse	LotAcreage	0.00	2,793.00
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tblOffRoadEquipment	HorsePower	226.00	500.00
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	1.8452	19.7186	13.4165	0.0235	1.9525	0.8021	2.7547	0.2850	0.7386	1.0236	0.0000	2,133.5831	2,133.5831	0.5509	0.0000	2,145.1517
2016	2.2236	20.2101	20.4429	0.0325	2.6318	0.8793	3.5111	0.4652	0.8103	1.2755	0.0000	2,784.6391	2,784.6391	0.6319	0.0000	2,797.9084
Total	**4.0688**	**39.9287**	**33.8594**	**0.0560**	**4.5843**	**1.6814**	**6.2658**	**0.7502**	**1.5489**	**2.2991**	**0.0000**	**4,918.2222**	**4,918.2222**	**1.1828**	**0.0000**	**4,943.0601**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.8398	9.9008	15.3273	0.0235	1.0380	0.4259	1.4639	0.1863	0.4190	0.6052	0.0000	2,133.5810	2,133.5810	0.5509	0.0000	2,145.1496
2016	1.2501	11.7923	22.5063	0.0325	1.7173	0.5436	2.2609	0.3665	0.5322	0.8986	0.0000	2,784.6369	2,784.6369	0.6319	0.0000	2,797.9062
Total	**2.0899**	**21.6931**	**37.8336**	**0.0560**	**2.7553**	**0.9695**	**3.7248**	**0.5527**	**0.9511**	**1.5038**	**0.0000**	**4,918.2179**	**4,918.2179**	**1.1828**	**0.0000**	**4,943.0558**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**48.64**	**45.67**	**-11.74**	**0.00**	**39.90**	**42.34**	**40.55**	**26.32**	**38.59**	**34.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.5700e-003	2.5000e-004	0.0263	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0499	0.0499	1.4000e-004	0.0000	0.0529
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5700e-003**	**2.5000e-004**	**0.0263**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0499**	**0.0499**	**1.4000e-004**	**0.0000**	**0.0529**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.5700e-003	2.5000e-004	0.0263	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0499	0.0499	1.4000e-004	0.0000	0.0529
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5700e-003**	**2.5000e-004**	**0.0263**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0499**	**0.0499**	**1.4000e-004**	**0.0000**	**0.0529**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization	Site Preparation	7/1/2015	7/31/2015	5	23	
2	Site Preparation	Site Preparation	8/1/2015	4/29/2016	5	195	
3	Miscellaneous	Building Construction	8/1/2015	11/30/2016	5	348	
4	Substation	Building Construction	8/11/2015	3/31/2016	5	168	
5	Post Installation	Trenching	9/8/2015	5/30/2016	5	190	
6	Transmission Line	Building Construction	10/6/2015	4/30/2016	5	149	
7	Below Grade Electrical	Trenching	11/3/2015	9/30/2016	5	239	
8	Above Grade Electrical	Building Construction	12/1/2015	10/31/2016	5	240	
9	Module Installation	Building Construction	12/29/2015	11/30/2016	5	242	
10	O&M Building	Building Construction	1/12/2016	4/29/2016	5	79	

Acres of Grading (Site Preparation Phase): 2793

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Mobilization	Off-Highway Trucks	5	2.00	350	0.38
Site Preparation	Graders	8	8.00	200	0.41
Site Preparation	Off-Highway Tractors	6	8.00	250	0.44
Site Preparation	Off-Highway Trucks	8	8.00	300	0.38
Site Preparation	Off-Highway Trucks	5	4.00	300	0.38
Site Preparation	Plate Compactors	6	3.00	100	0.43
Site Preparation	Rough Terrain Forklifts	2	2.00	75	0.40
Site Preparation	Scrapers	4	4.00	300	0.48

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	150	0.37
Miscellaneous	Air Compressors	2	2.00	75	0.48
Miscellaneous	Generator Sets	5	8.00	5	0.74
Miscellaneous	Off-Highway Trucks	1	1.00	180	0.38
Miscellaneous	Off-Highway Trucks	1	2.00	350	0.38
Miscellaneous	Plate Compactors	7	1.00	15	0.43
Substation	Cranes	2	5.00	200	0.29
Substation	Tractors/Loaders/Backhoes	2	7.00	150	0.37
Post Installation	Bore/Drill Rigs	12	8.00	45	0.50
Post Installation	Rough Terrain Forklifts	8	7.00	75	0.40
Transmission Line	Aerial Lifts	2	2.00	110	0.31
Transmission Line	Cranes	1	2.00	500	0.29
Transmission Line	Cranes	1	2.00	220	0.29
Transmission Line	Off-Highway Trucks	2	2.00	210	0.38
Below Grade Electrical	Excavators	4	7.00	45	0.38
Below Grade Electrical	Tractors/Loaders/Backhoes	4	7.00	150	0.37
Below Grade Electrical	Trenchers	2	4.00	100	0.50
Above Grade Electrical	Rough Terrain Forklifts	3	2.00	75	0.40
Module Installation	Rough Terrain Forklifts	15	2.00	75	0.40
O&M Building	Cranes	2	5.00	200	0.29
O&M Building	Tractors/Loaders/Backhoes	2	7.00	150	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Mobilization	5	5.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	43	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Miscellaneous	16	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Substation	4	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Post Installation	20	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Transmission Line	6	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Below Grade Electrical	10	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Above Grade Electrical	3	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
Module Installation	15	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT
O&M Building	4	58.00	0.00	5.00	40.00	8.90	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Mobilization - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0130	0.1527	0.0687	1.7000e-004		5.8300e-003	5.8300e-003		5.3700e-003	5.3700e-003	0.0000	15.7796	15.7796	4.7100e-003	0.0000	15.8785
Total	**0.0130**	**0.1527**	**0.0687**	**1.7000e-004**	**0.0000**	**5.8300e-003**	**5.8300e-003**	**0.0000**	**5.3700e-003**	**5.3700e-003**	**0.0000**	**15.7796**	**15.7796**	**4.7100e-003**	**0.0000**	**15.8785**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.3300e-003	8.9000e-004	0.0000	9.0000e-005	3.0000e-005	1.2000e-004	2.0000e-005	3.0000e-005	5.0000e-005	0.0000	0.3158	0.3158	0.0000	0.0000	0.3159
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	2.0200e-003	0.0168	2.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4425	1.4425	1.2000e-004	0.0000	1.4450
Total	**9.4000e-004**	**3.3500e-003**	**0.0177**	**2.0000e-005**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**4.8000e-004**	**4.0000e-005**	**5.2000e-004**	**0.0000**	**1.7583**	**1.7583**	**1.2000e-004**	**0.0000**	**1.7609**

3.2 Mobilization - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0500e-003	0.0782	0.0877	1.7000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003	0.0000	15.7796	15.7796	4.7100e-003	0.0000	15.8785
Total	**4.0500e-003**	**0.0782**	**0.0877**	**1.7000e-004**	**0.0000**	**2.9700e-003**	**2.9700e-003**	**0.0000**	**2.9700e-003**	**2.9700e-003**	**0.0000**	**15.7796**	**15.7796**	**4.7100e-003**	**0.0000**	**15.8785**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.3300e-003	8.9000e-004	0.0000	9.0000e-005	3.0000e-005	1.2000e-004	2.0000e-005	3.0000e-005	5.0000e-005	0.0000	0.3158	0.3158	0.0000	0.0000	0.3159
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	2.0200e-003	0.0168	2.0000e-005	1.7400e-003	1.0000e-005	1.7500e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4425	1.4425	1.2000e-004	0.0000	1.4450
Total	**9.4000e-004**	**3.3500e-003**	**0.0177**	**2.0000e-005**	**1.8300e-003**	**4.0000e-005**	**1.8700e-003**	**4.8000e-004**	**4.0000e-005**	**5.2000e-004**	**0.0000**	**1.7583**	**1.7583**	**1.2000e-004**	**0.0000**	**1.7609**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.4810	0.0000	1.4810	0.1599	0.0000	0.1599	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1716	15.1065	6.0780	0.0143		0.5660	0.5660		0.5207	0.5207	0.0000	1,361.0290	1,361.0290	0.4063	0.0000	1,369.5618
Total	**1.1716**	**15.1065**	**6.0780**	**0.0143**	**1.4810**	**0.5660**	**2.0470**	**0.1599**	**0.5207**	**0.6806**	**0.0000**	**1,361.0290**	**1,361.0290**	**0.4063**	**0.0000**	**1,369.5618**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	7.4000e-004	5.0000e-004	0.0000	8.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.1765	0.1765	0.0000	0.0000	0.1766
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0470	0.1109	0.9226	1.0500e-003	0.0954	6.5000e-004	0.0961	0.0253	6.0000e-004	0.0259	0.0000	79.2969	79.2969	6.7200e-003	0.0000	79.4379
Total	**0.0471**	**0.1116**	**0.9231**	**1.0500e-003**	**0.0955**	**6.7000e-004**	**0.0962**	**0.0253**	**6.2000e-004**	**0.0259**	**0.0000**	**79.4734**	**79.4734**	**6.7200e-003**	**0.0000**	**79.6145**

3.3 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5665	0.0000	0.5665	0.0612	0.0000	0.0612	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3504	6.7809	7.8430	0.0143		0.2636	0.2636		0.2636	0.2636	0.0000	1,361.0273	1,361.0273	0.4063	0.0000	1,369.5601
Total	**0.3504**	**6.7809**	**7.8430**	**0.0143**	**0.5665**	**0.2636**	**0.8301**	**0.0612**	**0.2636**	**0.3248**	**0.0000**	**1,361.0273**	**1,361.0273**	**0.4063**	**0.0000**	**1,369.5601**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	7.4000e-004	5.0000e-004	0.0000	8.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.1765	0.1765	0.0000	0.0000	0.1766
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0470	0.1109	0.9226	1.0500e-003	0.0954	6.5000e-004	0.0961	0.0253	6.0000e-004	0.0259	0.0000	79.2969	79.2969	6.7200e-003	0.0000	79.4379
Total	**0.0471**	**0.1116**	**0.9231**	**1.0500e-003**	**0.0955**	**6.7000e-004**	**0.0962**	**0.0253**	**6.2000e-004**	**0.0259**	**0.0000**	**79.4734**	**79.4734**	**6.7200e-003**	**0.0000**	**79.6145**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.4810	0.0000	1.4810	0.1599	0.0000	0.1599	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.8644	10.9982	4.5439	0.0113		0.4062	0.4062		0.3737	0.3737	0.0000	1,062.0760	1,062.0760	0.3204	0.0000	1,068.8035
Total	**0.8644**	**10.9982**	**4.5439**	**0.0113**	**1.4810**	**0.4062**	**1.8872**	**0.1599**	**0.3737**	**0.5336**	**0.0000**	**1,062.0760**	**1,062.0760**	**0.3204**	**0.0000**	**1,068.8035**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-005	5.0000e-004	3.6000e-004	0.0000	7.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1375	0.1375	0.0000	0.0000	0.1375
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0328	0.0789	0.6487	8.3000e-004	0.0753	4.8000e-004	0.0758	0.0200	4.4000e-004	0.0204	0.0000	60.0721	60.0721	4.8500e-003	0.0000	60.1741
Total	**0.0328**	**0.0794**	**0.6491**	**8.3000e-004**	**0.0753**	**4.9000e-004**	**0.0758**	**0.0200**	**4.5000e-004**	**0.0204**	**0.0000**	**60.2096**	**60.2096**	**4.8500e-003**	**0.0000**	**60.3115**