CHAPTER 3.0 ENVIRONMENTAL EFFECTS FOUND NOT TO BE SIGNIFICANT

3.1 Effects Found Not Significant as Part of the EIR Process

According to the California Environmental Quality Act (CEQA) Guidelines, an environmental impact report (EIR) shall focus on the significant effects on the environment (14 CCR 15143). An EIR shall therefore contain a statement indicating the reasons various possible significant effects were not found significant and not discussed in detail (14 CCR 15128). This section of the EIR provides discussions of those effects that were identified as potentially significant during the Initial Study and process but were concluded not to be significant after further analysis. For the purpose of this EIR, the County of San Diego's (County's) Guidelines of Determination of Significance apply to both the direct/indirect impacts analysis and the cumulative impact analysis, where applicable. Where the County's Guidelines for Determining Significance do not address the effects considered, Appendix G of the CEQA Guidelines has been used as the basis for this analysis.

The following environmental areas were found to be not significant during the EIR process: Air Quality, Geology, Soils, and Seismicity; Greenhouse Gas Emissions; Hydrology and Water Quality; Land Use and Planning, Traffic and Transportation; and Utilities and Service Systems.

3.1.1 Air Quality

This section discusses potential impacts to air quality resulting from the implementation of the Proposed Project. Information and analysis in this section have been compiled based on an understanding of the existing ambient air quality of the San Diego Air Basin (SDAB) and review of existing technical data, applicable laws, regulations, and guidelines, as well as the following technical reports prepared for the Proposed Project, consistent with the County of San Diego (County) Air Quality Report Format and Content Requirements (2007):

- *Air Quality and Greenhouse Gas Technical Report, Jacumba Solar Energy Project* (Appendix 3.1.1-1)

Comments received in response to the Notice of Preparation (NOP) included concerns regarding dust generation. These concerns are addressed in this section. A copy of the NOP and comment letters received in response to the NOP is included in Appendix 1-1 of this EIR.

3.1.1.1 Existing Conditions

This section describes the existing setting in the Proposed Project area and also identifies the resources that could be affected by the Proposed Project.

3.1.1.1.1 Climate and Topography

The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains.

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east. Along with local meteorology, the topography influences the dispersal and movement of pollutants in the basin. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

<u>Project Site</u>

The Proposed Project would be on properties that encompass a total of approximately 304 acres within the Mountain Empire Subregional Plan Area in unincorporated San Diego County. The Proposed Project site is approximately 108 acres, located south of Interstate 8 (I-8) within private lands located adjacent to the U.S./Mexico border in eastern San Diego County (Figure 1-2, Specific Location Map).

Topography within the Proposed Project site varies from a gentle slope to steeper terrain on the southwest portion of the Project site. The local climate in southeastern San Diego County including the Project site, which is primarily desert, consists of dry, hot summers (temperatures reaching 120 degrees Fahrenheit (°F)) and milder winters (daytime temperature in the 80s). The average summertime high temperature in the Project vicinity is approximately 90°F, although record highs have approached 120°F in July. The average wintertime low temperature is approximately 33°F, although record lows have approached 10°F in January. Average precipitation in the local area is approximately 15 inches per year, with the bulk of precipitation falling during January and February (WRCC 2014).

3.1.1.1.2 Air Pollution Climatology

The Proposed Project site is located within the SDAB and is subject to the San Diego Air Pollution Control District (SDAPCD) guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The SDAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and O_3.

The SDAB, which lies in the southwest corner of California and comprises the entire San Diego region, covering 4,260 square miles, is an area of high air pollution potential. The basin experiences warm summers, mild winters, infrequent rainfall, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, commonly known as smog.

Light daytime winds, predominately from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the basin are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within the County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

Site-Specific Meteorological Conditions

The local climate in southeastern San Diego County, which is primarily desert, consists of dry, hot summers (temperatures reaching 120°F) and milder winters (daytime temperature in the 80s). The average summertime high temperature in the Project vicinity is approximately 94°F, although record highs have approached 111°F in July. The average wintertime low temperature is approximately 33°F, although record lows have approached 10°F in January. Average precipitation in the local area is approximately 15 inches per year, with the bulk of precipitation falling during January and February (WRCC 2014).

3.1.1.1.3 Air Quality Characteristics

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes.

3.1.1.1.4 Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include: O_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). These pollutants are discussed below.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases (ROGs), and NO_x react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by

[1] The following descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the Environmental Protection Agency's (EPA's) *Six Common Air Pollutants* (EPA 2012a) and the CARB's *Glossary of Air Pollutant Terms* (CARB 2012a) published information.

complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO_x, the precursors of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation and ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Nitrogen Dioxide. Most NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

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

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

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

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

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

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

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants (HAPs), and adopts appropriate control measures for sources of these TACs. As examples, TACs include acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM). Some of the TACs are groups of compounds that contain many individual substances (for example, copper compounds and polycyclic organic matter).

3.1.1.1.5 Local Air Quality

SDAB Attainment Designation

An area is designated in attainment when it is in compliance with the National Ambient Air Quality Standards (NAAQS) and/or California Ambient Air Quality Standards (CAAQS). These standards are set by the U.S. Environmental Protection Agency (EPA) or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. The criteria pollutants of primary concern that are considered in this analysis are O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O_3.

The portion of the SDAB where the Project site is located is designated by the EPA as an attainment area for the 1997 8-hour NAAQS for O_3 and as a marginal nonattainment area for the 2008 8-hour NAAQS for O_3.The SDAB is designated in attainment for all other criteria pollutants under the NAAQS with the exception of PM_{10}, which was determined to be unclassifiable.

The SDAB is currently designated nonattainment for O_3 and particulate matter, PM_{10} and $PM_{2.5}$, under the CAAQS. It is designated attainment for the CAAQS for CO, NO_2, SO_2, lead, and sulfates.

Table 3.1.1-1, SDAB Attainment Classification, summarizes SDAB's federal and state attainment designations for each of the criteria pollutants.

3.1.1.1.6 Air Quality Monitoring Data

The SDAPCD operates a network of ambient air monitoring stations throughout San Diego County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The SDAPCD monitors air quality conditions at 10 locations throughout the basin. Due to its proximity to the site and similar geographic and climactic characteristics, the Alpine–Victoria Drive monitoring station concentrations for all pollutants, except PM_{10}, CO, and SO_2, are considered most representative of the Project site. The Chula Vista monitoring station is the nearest location to the Project site where CO and SO_2 concentrations are monitored and the El Cajon–Redwood Avenue monitoring station is the nearest location to the Project site where PM_{10} concentrations are monitored. Ambient concentrations of pollutants from 2009 through 2012 are presented in Table 3.1.1-2, Ambient Air Quality Data. The number of days exceeding the NAAQS/CAAQS is shown in Table 3.1.1-3, Frequency of Air Quality Standard Violations. The federal and state 8-hour and state 1-hour O_3 standards were exceeded every year from 2009 to 2013. The state 24-hour PM_{10} standard was exceeded in 2009, and the federal 24-hour $PM_{2.5}$ standard was exceeded in 2009 and 2011. Air quality within the Project region was in compliance with both CAAQS and NAAQS for NO_2, CO, PM_{10} (NAAQS only), and SO_2 during this monitoring period.

3.1.1.2 Regulatory Setting

<u>Federal</u>

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including the setting of NAAQS for major air pollutants, HAP standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. NAAQS are established for “criteria pollutants” under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

State

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established CAAQS, which are generally more restrictive than the NAAQS, consistent with the Clean Air Act, which requires state regulations to be at least as restrictive as the federal requirements. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 3.1.1-4, Ambient Air Quality Standards.

As part of its diesel risk reduction program, CARB adopted an Airborne Toxic Control Measure (ATCM) that applies to new and in-use stationary compression-ignition (i.e., diesel) engines. The ATCM was adopted in 2004 and revised in November 2010 with an effective date of May 19, 2011. After December 31, 2008, the ATCM requires that new emergency standby engines must comply with EPA emission standards applicable to a 2007-model-year off-road engine of the same horsepower rating. The ATCM further limits the particulate matter emissions from an emergency standby engine operated less than 50 hours per year for maintenance and testing to 0.15 gram per brake-horsepower-hour.

Local

San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The Project is located within the SDAB and is subject to SDAPCD guidelines and regulations. In San Diego County, O_3 and particulate matter are the pollutants of main concern, since exceedances of the CAAQS for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 nonattainment area and a CO maintenance area (western part of the SDAB only); the Project area is a CO attainment area.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the NAAQS and CAAQS in the SDAB. The County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis (most recently in 2009; SDAPCD 2009a). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County and the cities in the county, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the county as part of the development of their general plans.

The *Eight-Hour Ozone Attainment Plan for San Diego County* indicates that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard by 2009 (SDAPCD 2007). In this plan, SDAPCD relies on the RAQS to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these contaminants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and the EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS.

In December 2005, SDAPCD prepared a report titled *Measures to Reduce Particulate Matter in San Diego County* to address implementation of Senate Bill (SB) 656 in San Diego County (SB 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluates the implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust.

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations would apply to construction of the Proposed Project and some of the proposed stationary sources:

- **SDAPCD Regulation II: Permits; Rule 10: Permits Required.** Requires that any person building, erecting, altering, or replacing any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants, shall receive written authorization (Authority to Construction) and a Permit to Operate from the SDAPCD (SDAPCD 2000).

- **SDAPCD Regulation II: Permits; Rule 20.1: New Source Review – General Provisions.** Establishes the general provisions, including exemptions, definitions, and emission calculations, that apply to any new or modified emission unit, any replacement emission unit, any relocated emission unit or any portable emission unit for which an Authority to Construct or Permit to Operate is required (SDAPCD 1998a).
- **SDAPCD Regulation II: Permits; Rule 20.2: New Source Review – Non-Major Sources.** Applies to any new or modified stationary source, to any new or modified emission unit and to any relocated emission unit that is not considered a major stationary source. As applied to new or modified sources, the rule requires (1) the use of Best Available Control Technology (BACT) where the emissions of PM_{10}, NO_x, VOC, or SO_x would increase by 10 pounds per day or more; (2) an air quality impact analysis if the emissions of PM_{10}, NO_x, VOC, SO_x, or lead exceed designated trigger levels; and (3) establishes public noticing requirements prior to issuance of a permit (SDAPCD 1998b).
- **SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions.** Prohibits any activity causing air contaminant emissions darker than 20% opacity for more than an aggregate of 3 minutes in any consecutive 60-minute time period. In addition, Rule 50 prohibits any diesel pile-driving hammer activity causing air contaminant emissions for a period or periods aggregating more than 4 minutes during the driving of a single pile (SDAPCD 1997).
- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as trackout and carryout onto paved roads beyond a project site (SDAPCD 2009b).
- **SDAPCD Regulation XII: Prohibitions; Rule 1200: Toxic Air Contaminants – New Source Review.** Applies to any new, relocated, or modified emission unit which may increase emissions of one or more TACs that requires an Authority to Construct or Permit to Operate. The rule establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of Toxics-BACT (T-BACT), or an incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than one (SDAPCD 1996).

3.1.1.3 Analysis of Project Effects and Determination as to Significance

Methodology and Assumptions

Criteria Pollutant Emissions

Air quality impacts associated with the Proposed Project are related to emissions from short-term construction and long-term operations. Construction may affect air quality as a result of construction equipment emissions, fugitive dust from grading and earthmoving, and emissions from vehicles driven to/from the Proposed Project site by construction workers and material and water delivery trucks. Operational emissions would result primarily from maintenance personnel vehicle exhaust (i.e., mobile sources).

Emissions from the construction phase of the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, available online (http://www.caleemod.com/).

The equipment mix anticipated for construction activity was based on information provided by the Applicant and best engineering judgment and the information provided in Table 1-3 in Chapter 1, Project Description. The equipment mix is meant to represent a reasonably conservative estimate of construction activity. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least three times daily to comply with SDAPCD Rule 55, resulting in an approximately 61% reduction of particulate matter. A soil binding agent would be applied to the Project site, resulting in an additional 10% reduction in particulate matter.

To determine the maximum daily emissions that would occur during construction, all phases of construction were analyzed to account for earth work required; maximum number of worker vehicle trips, water delivery trips, material delivery trips; and construction equipment fleet operation that would be occurring simultaneously during each construction phase. These estimates were entered into the CalEEMod air quality model and the most intense construction activities that would occur on any one day were analyzed, reported, and compared against the County criteria air pollutant thresholds, as shown in Table 3.1.1-5, to determine the level of significance. Operational activities were then inputted into the model, including maintenance and personnel activity that would occur on a worst-case day scenario, to determine air quality impacts during operation.

Data and analysis from the Project air quality technical report (Appendix 3.1.1-1) were used to complete this section. The analysis in this report used a methodology for estimating construction and operational emissions for the Proposed Project that has been reviewed and approved by the County. Details regarding the methodology used are described in Appendix 3.1.1-1.

Carbon Monoxide

Mobile-source impacts occur essentially on two scales of motion. Regionally, Project-related construction travel would add to regional trip generation and increase the vehicle miles traveled (VMT) within the local airshed and the SDAB. Locally, Jacumba construction traffic would be added to the roadway system in the vicinity of the Proposed Project site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-Project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SDAB is steadily decreasing.

CO transport is extremely limited and CO disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors such as residents, school children, hospital patients, and the elderly. Typically, high CO concentrations are associated with urban roadways or intersections operating at an unacceptable level of service (LOS). CO hotspots have been found to occur only at signalized intersections that operate at or below LOS E with peak-hour traffic volumes exceeding 3,000 vehicles (County of San Diego 2007). Projects contributing to adverse traffic impacts may result in the formation of CO hotspots.

Based on the light use of area roadways, it was assumed that no intersections in the vicinity of the Proposed Project site would exceed a peak-hour volume of 3,000 vehicles; refer to Section 3.1.6, Traffic and Transportation, for further details.

Toxic Air Contaminants

DPM is characterized as a TAC by CARB. The Office of Environmental Health Hazard Assessment (OEHHA) has identified carcinogenic and chronic noncarcinogenic effects from long-term (chronic) exposure, but it has not identified health effects due to short-term (acute) exposure to DPM. The exhausts of diesel combustion engines used in heavy machinery are the most common sources of DPM, which consists of fine and ultrafine particles that may include compounds containing sulfate, nitrate, metals or carbon elements.

<u>**Cancer Risk**</u>

<u>Cancer risk is defined as the increase in lifetime probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased probability in 1 million. The cancer risk from inhalation of a TAC is estimated by calculating the inhalation dose in units of milligrams/kilogram body weight per day based on an ambient</u>

concentration in units of micrograms per cubic meter (μg/m^3), breathing rate, and exposure period, and multiplying the dose by the inhalation cancer potency factor, expressed as (milligrams/kilogram body weight per day)$^{-1}$. Typically, cancer risks for residential receptors and similar sensitive receptors are estimated based on a lifetime (70 years) of continuous exposure; however, for the purposes of this analysis, a 6 month exposure scenario was evaluated because the majority of all Project-related DPM would cease following construction activities. It should be noted that construction activity would occur throughout the 108-acre disturbance area; thus, sources of DPM emissions (e.g., heavy-duty construction equipment) would not be concentrated in any one area for the entire construction period.

Cancer risks are typically calculated for all carcinogenic TACs and summed to calculate the overall increase in cancer risk to an individual. The calculation procedure assumes that cancer risk is proportional to concentrations at any level of exposure and that risks from various TACs are additive. This is generally considered a conservative assumption at low doses and is consistent with the current OEHHA-recommended approach.

To estimate the ambient concentrations of DPM resulting from construction activities at nearby sensitive receptors, a dispersion modeling analysis was performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) dispersion model (Lakes Environmental 2013), Version 14134. This model can estimate the air quality impacts of single or multiple point, area, or volume sources using site-specific meteorological conditions. A single area source used to represent the emissions from heavy-duty construction equipment and heavy-duty trucks.

The DPM emissions from diesel-powered construction equipment and diesel-powered trucks that would be used during construction are provided in Appendix 3.1.1-1. To be conservative, the total pounds of DPM emissions from these sources (both on-site and off-site) over the entire construction period were taken from the annual CalEEMod output (see Appendix 3.1.1-1for annual output) and converted to pounds per year by dividing the total by 0.5 (total Project DPM would occur over 6 months). Because the sources of DPM would occur throughout the majority of the Project site, the Project site was modeled as an area source in AERMOD. A release height of 5 meters was provided to represent the midrange of the expected plume rise from frequently used construction equipment during daytime atmospheric conditions.

The annualized DPM emission rate for use in AERMOD was calculated as follows (see Appendix 3.1.1-1 for details):

$$\text{Unit emission rate for polygon source} = (1\ \text{g/s})/418{,}325\text{m}^2 = 2.39 \times 10^{-6}$$

$$\text{AERMOD unit concentration } (\mu\text{g/m}^3)/(1\text{g/s}) \text{ at maximally exposed individual (MEIR)} = 0.0666$$

CalEEMod total DPM exhaust (tons/yr) = 0.4218

Annualized DPM exhaust (g/s) = 0.4218 tons/yr × 2,000 lbs/ton × 453.6 g/lb ÷ 6 months/yr ÷ 4.3 weeks/month ÷ 6 days/week ÷ 8 hours/day ÷ 3,600 seconds/day × (6/12) = 0.0429

Annualized DPM concentration = 0.0429 g/s × 0.0666 = 0.0029 (μg/m^3)

The cancer risk calculations were performed using the HARP2 model, Risk Assessment Standalone Tool version 15076 for 0.5 years of exposure and a 3rd trimester start date as recommended under the updated OEHHA manual for health risk assessments prepared under the Air Toxics Hot Spots program (OEHHA 2015).

Chronic Hazard

In addition to the potential cancer risk, DPM has chronic (i.e., long-term) noncarcinogenic health impacts. The noncancer health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in units of μg/m^3 divided by the reference exposure level (REL), also in units of μg/m^3. The inhalation REL is the concentration at or below which no adverse health effects are anticipated. The REL is typically based on health effects to a particular target organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients are then summed for each target organ system to obtain a hazard index. The chronic noncarcinogenic inhalation hazard index for construction activities was calculated by dividing the modeled annual average concentrations of DPM by its REL, which is 5 μg/m^3 (OEHHA 2015).~~Cancer risk is defined as the increase in lifetime probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased probability in 1 million. The cancer risk from inhalation of a TAC is estimated by calculating the inhalation dose in units of milligrams/kilogram body weight per day based on an ambient concentration in units of micrograms per cubic meter (μg/m^3), breathing rate, and exposure period, and multiplying the dose by the inhalation cancer potency factor, expressed as (milligrams/kilogram body weight per day)$^{-1}$. Typically, cancer risks for residential receptors and similar sensitive receptors are estimated based on a lifetime (70 years) of continuous exposure; however, for the purposes of this analysis, a 1-year exposure scenario was evaluated because the majority of all Project-related DPM would cease following construction activities.~~

~~Cancer risks are typically calculated for all carcinogenic TACs and summed to calculate the overall increase in cancer risk to an individual. The calculation procedure assumes that cancer risk is proportional to concentrations at any level of exposure and that risks from various TACs are additive. This is generally considered a conservative assumption at low doses and is consistent with the current OEHHA-recommended approach.~~

~~The noncancer health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in units of μg/m^3 divided by the reference exposure level (REL), also in units of μg/m^3. The inhalation REL is the concentration at or below which no adverse health effects are anticipated. The REL is typically based on health effects to a particular target organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients are then summed for each target organ system to obtain a hazard index.~~

~~To estimate the ambient concentrations of DPM resulting from construction activities at nearby sensitive receptors, a dispersion modeling analysis was performed using the Lakes Environmental SCREEN-View air quality dispersion model, Version 3.5.0 (Lakes Environmental 2011), which uses the EPA's SCREEN3 model.~~

~~The total pounds of DPM emissions from these sources over the entire construction period were converted to pounds per year by dividing the total by 0.5 (total Project DPM would occur over 6 months). Because the sources of DPM would occur throughout the Project site, a subset of the total construction DPM emissions was calculated based on the average daily acreage over which construction activity would occur during grading. The daily acreage will be variable depending on the activity (e.g., clear and grub, underground trenching, panel installation). For the purpose of this analysis, the average daily acreage would be 11 acres; thus, a fraction of 11/108 was applied to the total construction DPM emissions. Total emissions of construction-related exhaust~~ ~~PM_{10}, as a surrogate for DPM, during the overall construction period were calculated and then converted to grams per second for use in the SCREEN3 model. See Appendix B of Appendix 3.1.1-1 for model outputs and cancer risk calculations.~~

~~Per EPA guidance (EPA 1992), the maximum modeled 1-hour concentration was then multiplied by 0.1 to simulate the annual average concentration. The modeled annual average concentration at the maximally exposed individual (located 3,500 feet from the volume source) is shown in Table 3.1.1-8, Summary of Maximum Modeled Cancer Risks.~~

~~The cancer risk calculations were performed by multiplying the predicted annual DPM concentrations from SCREEN3 by the appropriate risk values. The exposure and risk equations that are used to calculate the cancer risk at residential receptors are taken from the OEHHA manual for health risk assessments prepared under the Air Toxics Hot Spots program (OEHHA 2003). As noted, the nearest sensitive receptor is located approximately 3,500 feet from the edge of the volume source representing the construction DPM emissions.~~

~~In addition to the potential cancer risk, DPM has chronic (i.e., long-term) noncarcinogenic health impacts. The chronic hazard index was evaluated using the OEHHA/CARB inhalation RELs (CARB 2012b). The chronic noncarcinogenic inhalation hazard index for construction~~

~~activities was calculated by dividing the modeled annual average concentration of DPM by its REL, which is 5 μg/m^3.~~

San Diego Air Pollution Control District Thresholds

As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources. The SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 3.1.1-5, SDAPCD Air Quality Significance Thresholds, are exceeded. For California Environmental Quality Act (CEQA) purposes, these screening criteria can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality.

The thresholds listed in Table 3.1.1-5 represent screening-level thresholds that can be used to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds are considered to not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 3.1.1-5, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that incorporates a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

Compliance with County Code Section 87.428 (Grading Ordinance)

As described in Section 1.2.1, Project Components and Activities, of this EIR, the Proposed Project will implement measures to minimize fugitive dust (PM_{10}) during the construction phase of the Project to comply with County Code Section 87.428.

3.1.1.3.1 Conformance to the Regional Air Quality Strategy

Guidelines for the Determination of Significance

For the purpose of this EIR, Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) apply to both the direct impact analysis and the cumulative impact analysis. A significant impact would result if:

- The Proposed Project would conflict with or obstruct the implementation of the RAQS and/or applicable portions of the SIP.

Analysis

As mentioned in Section 3.1.1.2, the SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the SDAB; specifically, the SIP and RAQS. The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2012. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated on a triennial basis (most recently in 2009). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in unincorporated San Diego County and cities in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans.

The SIP and RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of the development of their general plans. As such, projects that involve development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS. However, if a project involves development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality. The current zoning for the site is General Rural (S92), which allows for the following use types that are permitted pursuant to Sections 2922 and 2923 of the County Zoning Ordinance: Residential, Family Residential, Essential Services, Fire and Law Enforcement Services, Agricultural Uses, Animal Sales and Services, Recycling Collection Facility, and Green Recycling. The Proposed Project would produce up to 20 megawatts (MW) of solar energy located on approximately 108 acres and approximately ~~184~~ 180 acres of Open Space Preserve, which would result in a less intense land use and would generate fewer operational trips than those land uses currently allowed. No residential, commercial, or growth-inducing development is proposed. During operation, operations and maintenance (O&M) staff would visit the Project substation and energy storage facility periodically for switching, panel washing, and other operational activities. Maintenance trucks would be utilized to perform routine maintenance, including but not limited to equipment testing, monitoring, repair, routine procedures to ensure service continuity, and standard preventative maintenance. The operation of the Proposed Project would result in a negligible increase in local employment and associated trips. While no more than one or two trips per day would typically result from operations, it was conservatively assumed that a maximum of 20 trips per day would be required for operational tasks.

As the Proposed Project would not contribute to local population growth or substantial employment growth and associated VMT on local roadways, the proposed solar development is considered accounted for in the SIP and RAQS, and the Proposed Project would not conflict with or obstruct the implementation with local air quality plans. Impacts would be considered **less than significant**.

3.1.1.3.2 Conformance to Federal and State Ambient Air Quality Standards

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) applies to both the direct impact analysis and the cumulative impact analysis. A significant impact would result if the Proposed Project would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Analysis

Construction Impacts

Construction of the Proposed Project would result in temporary emissions of criteria air pollutants and fugitive dust as a result of soil disturbance and the use of on-site construction equipment, as well as from off-site trucks hauling water and construction materials to the Project site. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Fugitive dust emissions would primarily result from site preparation and road construction activities. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles.

Construction is anticipated to commence in May 2016 and would require approximately 6 months to complete. A summarized construction schedule is included in Table 1-2, Construction Schedule (see Chapter 1, Project Description, of this EIR). Detailed information of the construction schedule, including heavy-duty construction equipment, hours of operation and duration, worker trips, and equipment mix, is included in Section 1.2 of Appendix 3.1.1-1.

Construction phases and associated durations were provided by the Project proponent and include the following phases, occurring 6 days per week:

- Mobilization/site preparation (2 weeks)
- Clear and grub/grading/roads (6 weeks)
- Underground electrical installation (16 weeks)
- PV racks and solar panel installation (16 weeks)
- Substation and battery energy storage system construction (7 weeks)
- Gen-tie construction (4 weeks)

As anticipated, completion of the Jacumba Solar Energy Project, including construction of the gen-tie, is anticipated to be completed by October 2016. Grading activities would be specifically associated with road construction following site clearing, grubbing, and grinding. All cut and fill quantities would be balanced on site, with approximately 180,000 cubic yards of cut redistributed across the site. Although all soil is planned to be balanced on-site, emissions modeling included the potential import of 6,300 cubic yards of soil.

Water demand during construction would vary over the different phases of construction, as shown in Table 1-4, Construction Water Demand (see Chapter 1). Based on the estimated water demands for the Proposed Project, an estimated 11.3 acre-feet of water would be required during clearing, grubbing, and grinding activities. Water demand for grading would amount to 38.4 acre-feet. ~~It should be noted that site preparation and grading activities would occur simultaneously, resulting in combined water import and fugitive dust emissions during this time. This overlap and resulting emissions has been accounted for in the emission calculations as shown in Table 3.1.1-6.~~It was assumed that approximately 5 acres of grading would occur each day during grading of that phase of construction. Water distributed on site for additional dust control activities for the remainder of construction activities following site preparation and grading would amount to 8.0 acre-feet. An additional 0.9 acre-feet would be required for other construction needs, such as fire protection water supply, washing stations for construction vehicles, gen-tie line, and concrete hydration. The total water demand for construction would then amount to 58.6 acre-feet, requiring an approximate average of forty-seven 6,000-gallon water trucks per day for water import. Specific water import demands (as opposed to average water demand) and associated truck trips for each individual construction phase were accounted for in the emission calculations to determine maximum daily emissions from water import for each individual construction phase. Similar phase-specific vehicle trips and equipment fleet operations were calculated for individual construction phases to determine the maximum worst-case day scenario and reported in Table 3.1.1-6. All water for construction would be imported from off-site sources. For analysis purposes, Padre Dam was assumed as the water source as it is the greatest distance trucks would travel for water (approximately 64 miles). The JCSD, which is also an option for partial water supply, is approximately 2.5 miles from the project site.

Additionally, adherence to County Code Section 87.428, Dust Control Measures, and SDAPCD Rule 55 during construction activities will reduce PM_{10} emissions (see Section 1.2.1, under Clearing and Grading).

Construction activities would be subject to several control measures per the requirements of the County, SDAPCD rules, and CARB air toxic control measures. Emission estimates shown in Table 3.1.1-6, Estimated Daily Maximum Construction Emissions, include the required control measures that were incorporated into the modeling for estimated construction emissions generated during construction period. See Appendix A of Appendix 3.1.1-1 for details regarding emission calculations and assumptions.

Table 3.1.1-6 shows the estimated maximum daily construction emissions associated with the construction phase of the Proposed Project. The maximum daily emissions for each pollutant may occur during different phases of construction.

As shown, daily construction emissions for the Proposed Project would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ and would therefore be **less than significant**.

Operational Impacts

Operation of the Jacumba Solar Project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions associated with inspection vehicles, personnel transport vehicles, panel washing equipment, and service trucks during operation and maintenance for the solar Project. Substantial area source emissions generated from natural gas use are not anticipated, as the O&M building and substation would not require natural gas consumption during Project operations.

The Jacumba Solar Project would have a marginal impact to air quality, although O&M vehicles will be used on the site during monitoring, panel washing, inspection, and repair activities throughout the life of the solar Project. The O&M activities would occur approximately 2 working days per month over 12 months, for a total of 24 work days per year for worker vehicle frequency. On-site operations activity would include panel washing every 2 months, or less, by mobile crews who would also be available for dispatch whenever on-site repairs or other maintenance are required. Panel washing would require the use of panel washing equipment. The proposed gen-tie would also involve regular herbicide application, transmission pole and structure brushing, and equipment repair.

Table 3.1.1-7, Estimated Daily Maximum Operational Emissions, presents the maximum daily emissions associated with the operation of the Jacumba Solar Project. The maximum daily emissions assume that all O&M activities associated with the solar Project and the gen-tie could occur on the same day.

As shown, daily operational emissions would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Although emissions would be below the thresholds, fugitive dust controls would be implemented in accordance with SDAPCD Rule 55 during Project operation.

Impacts during Project operation would be **less than significant**.

3.1.1.3.3 Impacts to Sensitive Receptors

Guidelines for the Determination of Significance

A significant impact would result if:

- The project places sensitive receptors near CO hotspots or creates CO hotspots near sensitive receptors.
- Project implementation will result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics–Best Available Control Technology (T-BACT) or a health hazard index greater than 1 would be deemed as having a potentially significant impact.

Analysis

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Air quality regulators typically define sensitive receptors as schools (preschool–12th grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purposes of CEQA analysis in the County, the definition of a sensitive receptor also includes residents. The two primary emissions of concern regarding health effects for land development projects are DPM during construction and CO hotspots related to traffic congestion.

Construction Impacts

Carbon Monoxide

Based on the light use of area roadways, it was assumed that no intersections in the vicinity of the Proposed Project site would exceed a peak-hour volume of 3,000 vehicles; refer to Section 3.1.6, Traffic and Transportation, for further details. Hotspots of CO are not of concern when the peak-hour vehicle volumes are below 3,000. As stated in Section 3.1.6, the daily construction trips associated with the Proposed Project during the most intense 6 weeks of construction (grading) would total 149 daily round trips. This results from 126 workers, and 10 water delivery truck trips, which have a passenger car equivalent of 1.5, and 2 material haul truck trips with a passenger car equivalent of 4.[2] While Project construction would generate a maximum of 298 average daily trips (ADT), or 149 daily round trips, at the most intense worker period of construction activities, trip generation and distribution for workers and delivery trucks would ultimately vary depending on the phase of construction. A traffic impact study for the Proposed Project was not prepared. Because a traffic impact study was not prepared and was not warranted, the existing delay and LOS at unsignalized intersections that would be encountered by construction traffic is not known. However, the Project area is primarily rural in character, the population is low, and local roads are typically traversed by residents and occasional government vehicles. Regional travel through the area is provided by Old Highway 80; however, I-8 receives the majority of regional through traffic. Therefore, for the purposes of this analysis and due to the local character of the Project area, intersections along the anticipated construction access routes are assumed to be operating at an acceptable LOS with little delay.

Additionally, construction traffic would be temporary and short-term in nature, and would occur intermittently throughout the various phases of construction from site grading and panel installation to the construction of the substation and energy storage facility. Moreover, Project-generated trips would be in rural areas where the existing traffic is light and they would include components that would be spread throughout the day. For these reasons, construction-related traffic is not expected to impact local intersections and cause an exceedance of the CO CAAQS. Impacts would be **less than significant**.

Toxic Air Contaminants – Diesel Particulate Matter

Project construction would result in emissions of DPM from heavy-duty construction equipment and trucks operating on the Project site (e.g., water trucks). The nearest sensitive receptor is a single-family residence located approximately 3,500 feet north of the Project site.

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[2] 126(workers) × 2(each way trips) = 252 Worker ADT. 10 (water trucks) × 2 (each way trips) × 1.5 (pce) = 30 Water ADT. 2 (dirt haul truck) × 2 (each way trips) × 4 (pce) = 16 Delivery ADT. Total = [252+30+16] 298 ADT.

It should be noted that construction activity would occur throughout the 108-acre Project site; thus, sources of DPM emissions (e.g., heavy-duty construction equipment) would not be concentrated in any one area for the entire construction period.

The DPM emissions from diesel-powered construction equipment and on-site diesel-powered trucks that would be used during construction are provided in Appendix 3.1.1-1. To be conservative, the total pounds of DPM emissions from these sources (both on-site and off-site) over the entire construction period were taken from the annual CalEEMod output (see Appendix 3.1.1-1 for annual output) and converted to pounds per year. The cancer risk calculations were performed by multiplying the predicted annual DPM concentrations from AERMOD by the appropriate risk values. The exposure and risk equations that are used to calculate the cancer risk at residential receptors are taken from the updated OEHHA manual for health risk assessments prepared under the Air Toxics Hot Spots program (OEHHA 2015). The cancer risk calculations were performed using the HARP2 model, Risk Assessment Standalone Tool version 15076 for 0.5 years of exposure and a 3rd trimester start date as recommended under the updated OEHHA manual for health risk assessments prepared under the Air Toxics Hot Spots program (OEHHA 2015).

Table 3.1.1-8 shows the maximum modeled annual DPM concentration for the maximally exposed individual and the associated cancer risk. The cancer risk at a sensitive receptor is less than the County significance threshold of 1 in 1 million for cancer impacts.

In addition to the potential cancer risk, DPM has chronic (i.e., long-term) noncarcinogenic health impacts. The chronic hazard index was evaluated using the OEHHA inhalation RELs. The chronic noncarcinogenic inhalation hazard index for construction activities was calculated by dividing the modeled annual average concentrations of DPM by its REL, which is 5 µg/m^3 (OEHHA 2015). Table 3.1.1-9, Summary of Maximum Chronic Hazard Index, shows the maximum modeled annual DPM concentration for the maximally exposed individual and the associated maximum chronic hazard index. The chronic hazard index at this receptor is 0.~~002~~0006, which is less than the County significance threshold of 1.0 for noncarcinogenic health impacts.

In summary, the maximum anticipated cancer risk associated with the Proposed Project is 0.~~036~~ 3025 in 1 million at maximally exposed sensitive receptors, based on a ~~1-year~~6 month exposure scenario. The assessment also finds that the chronic hazard index for noncancer health impacts are well below 1.0 at the maximally exposed individual.

Regarding gen-tie line construction, impacts to sensitive receptors during construction of the gen-tie line would be minimal, as construction activities would move in a linear manner along the gen-tie route. No construction activities would occur in one location for an extended period of time. Additionally, the duration of construction for the gen-tie, types of construction activities, and equipment fleet required would be less than that for the solar Project. As such, the exposure of sensitive receptors to Project-related TAC emission impacts during construction of the Proposed Project, including the gen-tie line, would be **less than significant**.

Operational Impacts

Carbon Monoxide

Consistent with the County’s guidelines, analysis of potential CO hotspots would not be required for the Proposed Project since it does not propose uses that would significantly contribute to local population or employment growth or congestion on local roadways. The addition of O&M vehicles would not significantly contribute peak-hour trips in the Project area or impact roadway intersections. During operations, the Proposed Project would be an unmanned facility that would be monitored remotely. Periodic inspections, washing and repair, or maintenance would occur and generate an anticipated maximum of 20 ADT should these activities occur simultaneously. Therefore, the Proposed Project would not have the potential to create a CO hotspot or result in a considerable net increase of CO. Impacts would be **less than significant**.

Toxic Air Contaminants – Diesel Particulate Matter

In addition to impacts from criteria pollutants, Project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. State law has established the framework for California’s TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California.

In San Diego County, SDAPCD Rule 1210 implements the public notification and risk reduction requirements of state law, and requires facilities with high potential health risk levels to reduce health risks below significant risk levels. In addition, Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of T-BACT, or an incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than 1. The human health risk analysis is based on the time, duration, and exposures expected. T-BACT would be determined on a case-by-case basis; however, examples of T-BACT include diesel particulate filters, catalytic converters, and selective catalytic reduction technology.

The nearest sensitive receptor is a single-family residence located approximately 3,500 feet north of the Project site. Operation of the proposed solar energy plant, by its nature, would not generate a significant amount of TACs in the immediate area and due to the substantial distance between the nearest sensitive receptor and energy plant, emissions would not result in significant impacts. Additionally, the Proposed Project would not require the extensive use of diesel trucks during operation but would include inspection vehicles, washing vehicles, and a service truck. As such, the exposure of Project-related TAC emission impacts to sensitive receptors during operation of the Proposed Project would be **less than significant**.

3.1.1.3.4 Odor Impacts

Odors are a form of air pollution that is most obvious to the general public. Odors can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern.

Guidelines for the Determination of Significance

Based on the County *Guidelines for Determining Significance – Air Quality*, the Proposed Project would have a significant impact if:

- The project, which is not an agricultural, commercial, or an industrial activity subject to SDAPCD standards, as a result of implementation, would either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons.

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 and SDAPCD Rule 51, commonly referred to as public nuisance law, prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. It is generally accepted that the "considerable number of persons" requirement in Rule 51 is normally satisfied when 10 different individuals/households have made separate complaints within 90 days (Smith 2009). The potential for an operation to result in odor complaints from a "considerable" number of persons in the area would be considered to be a significant, adverse odor impact.

Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

Section 6318 of the San Diego County Zoning Ordinance requires that all commercial and industrial uses be operated so as not to emit matter causing unpleasant odors that are perceptible by the average person at or beyond any lot line of the lot containing said uses. Section 6318 goes on to further provide specific dilution standards that must be met "at or beyond any lot line of the lot containing the uses" (County of San Diego 1979). SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative, and will focus on the existing and potential surrounding uses and location of sensitive receptors.

Analysis

Construction Impacts

Construction of Proposed Project would result in the emission of diesel fumes and other odors typically associated with construction activities. These compounds would be emitted in varying amounts on the site depending on where construction activities are occurring, number and types of construction activities occurring, and prevailing weather conditions, among other factors. Sensitive receptors located in the vicinity of the construction site may be affected. The nearest sensitive receptor is a single-family residence located approximately 3,500 feet north of the Project site. Odors are highest near the source and would quickly dissipate off site. Any odors associated with construction activities would be temporary and would cease upon completion; therefore, impacts would be **less than significant**.

Operational Impacts

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed solar Project would not generate objectionable odors off site, nor would significant odors be generated during operation and maintenance of the facility because it is not associated with the aforementioned land uses and would not propose operational activities that would be commonly associated with substantial odor-generating activities such as fertilizer application for agricultural uses or the treatment of wastewater. Operations that might produce odors would consist of standard service and personnel vehicles which would visit the site regularly during inspection, maintenance, and washing activities. Therefore, operation of the Proposed Project would not create objectionable odors affecting a substantial number of people. Thus, the impacts associated with odors would be **less than significant**.

3.1.1.4 Cumulative Impact Analysis

In analyzing cumulative impacts from a proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as nonattainment for the state and federal ambient air quality standards. The proposed project would have a cumulatively considerable impact if project-generated emissions would exceed thresholds for PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs. If the proposed project does not exceed thresholds and is determined to have less-than-significant project-specific impacts, it may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. Air quality analysis is inherently cumulative as it considers the air quality in the context of the entire SDAB and SDAPCD air quality plans.

Background ambient air quality, as measured at the monitoring stations maintained and operated by SDAPCD, measures the concentrations of pollutants from existing sources; therefore, past and present project impacts are included in the background ambient air quality data.

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to air quality includes the southeastern corner of the SDAB (San Diego County). The primary air quality impacts of the Proposed Project would occur during construction, since the operational impacts would result from limited vehicle trips for operations, maintenance, washing, and inspection, and would be substantially less than construction impacts. Due to the nonattainment status of the SDAB, the primary air pollutants of concern would be NO_x and VOCs, which are ozone precursors, and PM_{10} and $PM_{2.5}$. NO_x and VOCs are primarily emitted from motor vehicles and construction equipment, while PM_{10} and $PM_{2.5}$ are emitted primarily as fugitive dust during construction. Because of the nature of ozone as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum ozone impacts generally occur downwind of the area in which the ozone precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, would tend to occur locally; thus, projects occurring in the same general area and in the same time period would tend to create cumulative air quality impacts.

Existing Cumulative Conditions

Air quality management in the geographic area for the cumulative impact assessment is the responsibility of the SDAPCD. Existing levels of development in San Diego County have led to the nonattainment status for ozone with respect to the CAAQS and NAAQS, and for PM_{10} and $PM_{2.5}$ with respect to the CAAQS. The nonattainment status is based on ambient air quality monitoring generally conducted in the urban portions of the County. No monitoring stations exist in the geographic area for the cumulative impact assessment, but air quality would generally be better than that in the urban areas in the western portion of the County due to the lack of major air pollutant sources. The air quality plans prepared by the SDAPCD reflect future growth under local development plans but are intended to reduce emissions countywide to levels that would comply with the NAAQS and CAAQS through implementation of new regulations at the local, state, and federal levels.

The separate guidelines of significance discussed below have been developed to respond to the following question from the CEQA Guidelines, Appendix G:

- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is nonattainment under an applicable federal or state ambient air quality standard?

3.1.1.4.1 Cumulatively Considerable Net Increase of Criteria Pollutants (Construction)

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) applies to the cumulative impact analysis. Cumulatively considerable net increases during the construction phase would typically occur if two or more projects near each other are simultaneously under construction. A significant impact would result if:

- A project that has a significant direct impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NO_x and/or VOCs, would also have a significant cumulatively considerable net increase.
- In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines identified in Table 3.1.1-5, SDAPCD Air Quality Significance Thresholds.

Analysis

The SDAB is currently classified as a nonattainment area for the NAAQS and CAAQS for $O_{3,}$ which is caused by contributions from O_3 precursors NO_x and VOCs. The SDAB is also classified as a nonattainment area for the CAAQS for PM_{10} and $PM_{2.5}$.

As discussed previously, the Proposed Project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. However, the emissions of all criteria pollutants would be below the significance levels.

Construction of cumulative projects simultaneously with the Proposed Project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance and hauling activities, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials and worker vehicular trips. Fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from site preparation activities. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles, the latter of which would generally be dispersed over a large area where the vehicles are traveling.

The extent to which all reasonably foreseeable cumulative projects and the Proposed Project would result in significant cumulative impacts depends on their proximity and construction time schedules. The Proposed Project would be constructed in 6 months starting in May 2016 and would be constructed concurrently with, and in proximity to, other land use and infrastructure development projects (e.g., Soitec solar facilities). Although it is anticipated that construction of the Proposed Project would occur concurrently with other development projects, analysis of cumulative emissions of VOCs, CO, and SO_x in terms of construction emission concentrations of these pollutants would be speculative due to variability in project construction schedules and mobile source trip routes; however, background concentrations of these pollutants are very low relative to the CAAQS and NAAQS in the Proposed Project area such that cumulative contributions to the local ambient air quality would not be considerable. Regarding PM_{10}, $PM_{2.5}$, and NO_x, cumulative emissions of these pollutants would be temporary; would be primarily localized to the Project site, particularly during site preparation and grading activities; and would not be emitted over long distances. Each of the cumulative projects are required to comply with APCD and County rules regulating air quality. Moreover, as stated in Section 3.1.6, Traffic and Transportation, the Proposed Project's contribution to on-road passenger vehicle and road travel would not be substantial. Therefore, the Project's minimal on-site and mobile emissions, when added to other projects in the vicinity, would **not result in a cumulatively significant impact**.

Additionally, the Proposed Project would be required to comply with SDAPCD Rule 55 and County Code Section 87.428 (and would implement measures recommended under Clearing and Grading in Section 1.2.1), which regulate construction activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site, thereby further reducing cumulative emissions. Once construction is completed, construction-related emissions would cease. Therefore, due to Project construction emissions being below significant levels, the limited period of construction activities, and the localized nature of pollutants internal to the site, the cumulative impact for construction emissions of the Proposed Project would be **less than significant**.

3.1.1.4.2 Cumulatively Considerable Net Increase of Criteria Pollutants (Operation)

Guidelines for the Determination of Significance

The guidelines for the consideration of operational cumulatively considerable net increases are treated differently due to the mobile nature of the emissions. The SDAB's RAQS, based on growth projections derived from the allowed general plan densities, are updated every 3 years by SDAPCD and lay out the programs for attaining the CAAQS and NAAQS for O_3 precursors. It is assumed that a project that conforms to the County General Plan, and does not have emissions exceeding the screening-level thresholds, will not create a cumulatively considerable net increase to O_3 since the emissions were accounted for in the RAQS.

The following guidelines for determining significance must be used for determining the cumulatively considerable net increases during the operational phase:

- A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs would also have a significant cumulatively considerable net increase.
- Projects that cause road intersections to operate at or below a level of service E (analysis only required when the addition of peak-hour trips from the Proposed Project and the surrounding projects exceeds 2,000) and create a CO hotspot create a cumulatively considerable net increase of CO.

Analysis

With regard to cumulative impacts associated with O_3 precursors, in general, if a project is consistent with the community and general plans, it has been accounted for in the O_3 attainment demonstration contained within the RAQS. Therefore, if a project is consistent with the applicable community and general plans, it would not cause a cumulative contribution to the ambient air quality for O_3 because it does not propose growth-inducing uses that would contribute substantially to local population or employment growth and associated VMT on local roadways. The current zoning for the site is General Rural (S92), which allows for the following use types that are permitted pursuant to Sections 2922 and 2923 of the County Zoning Ordinance: Residential, Family Residential, Essential Services, Fire and Law Enforcement Services, Agricultural Uses, Animal Sales and Services, Recycling Collection Facility, and Green Recycling. The Proposed Project would produce up to 20 MW of solar energy located on approximately 108 acres. As such, the Proposed Project would consist of a less intense land use in terms of mobile source emissions than what is currently allowed under the County General Plan.

The Proposed Project would marginally impact air quality through O&M vehicles frequenting the site during monitoring, washing, inspection, and repair activities throughout the life of the Project. As the Proposed Project does not involve residential, commercial, or other growth-inducing uses that would contribute substantially to local population or employment growth and associated VMT on local roadways, the Proposed Project's contribution to cumulative operational impacts due to motor vehicles would be minimal. Additionally, no significant area source emissions generated from landscaping or natural gas use are anticipated. Therefore, as the Proposed Project does not represent a substantial increase in projected traffic over current conditions, emissions of O_3 precursors (VOCs and NO_x) would be well below the screening-level thresholds and would not result in a significant increase of O_3 precursors during operation. Thus, the Proposed Project **would not result in a cumulatively considerable contribution** to O_3 concentrations or fugitive dust generation.

Additionally, consistent with the County's guidelines, analysis of potential CO hotspots would not be required for this Project since the Proposed Project does not include uses that would significantly contribute to local population or employment growth or congestion on local roadways. The addition of O&M vehicles would not significantly contribute to peak-hour trips in the Project area or impact roadway intersections. Therefore, the Project **would not have the potential to create a CO hotspot or a cumulatively considerable net increase of CO**.

3.1.1.5 Significance of Impacts Prior to Mitigation

Conformance with the Regional Air Quality Strategy

The Proposed Project site is currently designated Rural Lands (RL) with a permitted density of 1 dwelling unit per 80 acres with existing zoning of General Rural (S92). The Proposed Project consists of solar energy development and would consist of a 20 MW generation capacity, with on-site substation and energy storage facility on an approximately 108-acre site within approximately 304 acres of property that would also include approximately 184 acres of Open Space Preserve. No residential, commercial, or growth-inducing development is proposed that would contribute substantially to local population or employment growth and associated VMT on local roadways. The operation of the Proposed Project would result in a small increase in local employment. As such, the Proposed Project would consist of a less intense land use in terms of mobile source emissions than what is currently allowed under the County General Plan.

As the Proposed Project would not contribute to local population growth or substantial employment growth and associated VMT on local roadways, the proposed solar development Project is considered accounted for in the SIP and RAQS, and the Proposed Project would not conflict with or obstruct the implementation with local air quality plans. Impacts would be considered **less than significant**.

Conformance to Federal and State Ambient Air Quality Standards

Construction

Daily construction emissions for the Proposed Project would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, as shown in Table 3.1.1-6. Construction-related impacts would be **less than significant.** Additionally, adherence to County Code Section 87.428, Dust Control Measures, and SDAPCD Rule 55 (see Clearing and Grading in Section 1.2.1) during construction activities would minimize NO_x and PM_{10} emissions.

Operation

Daily operational emissions for the Proposed Project would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Although emissions would be below the thresholds, SDAPCD Rule 55 would be implemented during Project operation to minimize fugitive dust emissions during operation. Impacts during operation would be **less than significant**.

Impacts to Sensitive Receptors

Construction

The maximum anticipated cancer risk associated with the Proposed Project at maximally exposed sensitive receptors based on a short-term construction exposure scenario would be less than significant. The assessment for the Proposed Project found that the chronic hazard index for noncancer health impacts are below 1.0 at the maximally exposed individual, as shown in Tables 3.1.1-8 and 3.1.1-9. Additionally, because there would not be a concentration of construction equipment in any one area for an extended period of time, particulate matter and diesel exhaust emissions would be distributed throughout the Proposed Project site and would therefore occur in relatively low concentrations at existing sensitive receptors, which are some distance away. As a result, these construction emissions would not be considered significant. Impacts for the Proposed Project would be **less than significant**.

Operation

Consistent with the County's guidelines, analysis of potential CO hotspots would not be required for the Proposed Project since the Project does not include uses that would significantly contribute to local population or employment growth or congestion on local roadways. The addition of O&M vehicles would not significantly contribute peak-hour trips in the Project area or impact roadway intersections. Therefore, the Proposed Project would not have the potential to create a CO hotspot or result in a considerable net increase of CO. Impacts for the Proposed Project would be **less than significant**.

Odor Impacts

Due to the nature of the Proposed Project, odor impacts are unlikely. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants would exist during construction, operation, or maintenance activities. Because there would be few sources of odor in proximity to sensitive receptors, and construction would be short term and localized, odor-related impacts for the Proposed Project would be **less than significant**.

Cumulatively Considerable Impacts

Construction

Construction of the Proposed Project would not exceed any designed thresholds for criteria pollutants. Additionally, dust control measures in accordance with County Grading Ordinance requirements would minimize construction-related emissions from the Proposed Project. Further, construction would be short term, and once completed, construction-related emissions would cease. Accordingly, generation of these criteria pollutant emissions, when combined with other cumulative projects, **would not result in a cumulatively considerable contribution** to a degradation in air quality.

Operation

As the Proposed Project does not represent a substantial increase in projected traffic over current conditions; emissions of O_3 precursors (VOCs and NO_x) would be below the screening-level thresholds and would not result in a significant increase of O_3 precursors during operation. Thus, the Proposed Project **would not result in a cumulatively considerable contribution** to O_3 concentrations.

Additionally, consistent with the County's guidelines, analysis of potential CO hotspots would not be required for this Project since the Project does not propose uses that would significantly contribute to local population or employment growth or congestion on local roadways. The addition of operations and maintenance vehicles would not significantly contribute peak-hour trips in the Project area or impact roadway intersections. Therefore, the Project **would not have the potential to create a CO hotspot or a cumulatively considerable net increase of CO**.

3.1.1.6 Mitigation Measures

No mitigation measures are necessary with regard to air quality for the Proposed Project.

3.1.1.7 Conclusion

The following discussion provides a synopsis of the conclusion reached in each of the above impact analyses, and the level of impact that would occur after mitigation measures, if any, are implemented. The Proposed Project would not require mitigation measures because there were no identified significant impacts relative to air quality.

Conformance with the Regional Air Quality Strategy

The Proposed Project would not contribute to local population growth or substantial employment growth and associated VMT on local roadways. The Proposed Project is considered accounted for in the RAQS. As such, the Proposed Project would not conflict with or obstruct the implementation with local air quality plans. Impacts would be considered **less than significant**.

Conformance to Federal and State Ambient Air Quality Standards

Construction

Daily construction emissions for the Proposed Project would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Additionally, adherence to County Code Section 87.428, Dust Control Measures, and SDAPCD Rule 55 (see Clearing and Grading in Section 1.2.1) during construction activities would minimize NO_x and PM_{10} emissions. Therefore, impacts would be **less than significant**.

Operation

Daily operational emissions for the Proposed Project would not exceed the thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Although emissions would be below the thresholds, adherence to SDAPCD Rule 55 during Project operation would minimize fugitive dust emissions during operation. Therefore, operational impacts would be **less than significant**.

Impacts to Sensitive Receptors

The chronic hazard index for noncancer health impacts would be below 1.0 at the maximally exposed individual for the Proposed Project and therefore the exposure of Project-related TAC emission impacts to sensitive receptors during construction would be below thresholds. Additionally, because there would not be a concentration of construction equipment in any one area for an extended period of time, particulate matter and diesel exhaust emissions would be distributed throughout the Proposed Project site and would, therefore, occur in relatively low concentrations at existing sensitive receptors. As a result, these construction emissions would not be considered significant. Impacts would be **less than significant**.

The addition of O&M vehicles would not significantly contribute peak-hour trips in the Project area or impact roadway intersections. Therefore, the Proposed Project would not have the potential to create a CO hotspot or result in a considerable net increase of CO. Additionally, the Proposed Project would not require the extensive use of diesel trucks during operation but would include employee commute vehicles, and limited use of personnel transport vehicles, washing vehicles, and a service truck. Impacts would be **less than significant**.

Odor Impacts

Due to the nature of the Proposed Project, odor impacts are unlikely. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants would exist during construction, operation, or maintenance activities. Because there would be few sources of odor in proximity to sensitive receptors, and construction would be short term and localized near these sensitive receptors along the interconnection line, odor-related impacts would be **less than significant**.

Cumulatively Considerable Impacts

Construction of the Proposed Project will not result in emissions higher than identified thresholds, with emissions also being short term during construction. Although it is anticipated that construction of the Proposed Project would occur concurrently with other development projects, cumulative emissions of VOCs, CO, and SO_x would not be considered cumulatively considerable when combined with other projects because background concentrations of these pollutants are very low relative to the CAAQS and NAAQS in the Proposed Project area, such that cumulative impacts to local ambient air quality would be less than significant. Regarding PM_{10}, $PM_{2.5}$ and NO_x, cumulative emissions of these pollutants would be temporary; would be primarily localized to the Project site, particularly during site preparation and grading activities; and would not be emitted over long distances. Additionally, adherence to County Code Section 87.428, Dust Control Measures, and SDAPCD Rule 55 would further minimize cumulative emissions. As such, impacts would **not be considered cumulatively considerable** during the short-term construction period when combined with other projects in the vicinity.

During Proposed Project operations, as the Proposed Project does not represent a substantial increase in projected traffic over current conditions; emissions of O_3 precursors (VOCs and NO_x) would be below the screening-level thresholds and would not result in a significant increase of O_3 precursors during operation. Thus, the Proposed Project **would not result in a cumulatively significant impact** on O_3 concentrations. Also, the addition of O&M vehicles would not significantly contribute peak-hour trips in the Project area or impact roadway intersections. Therefore, the Project **would not have the potential to create a CO hotspot or a cumulatively considerable net increase of CO**.

Table 3.1.1-1
SDAB Attainment Classification

Pollutant	Federal Designation	State Designation
O_3 (1-hour)	Attainment[a]	Nonattainment
O_3 (8-hour – 1997) (8-hour – 2008)	Attainment (Maintenance) Nonattainment (Marginal)	Nonattainment
CO	Unclassifiable/Attainment[b]	Attainment
PM_{10}	Unclassifiable[c]	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
NO_2	Unclassifiable/Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen Sulfide	(no federal standard)	Unclassified
Visibility	(no federal standard)	Unclassified

Sources: EPA 2014 (Federal); CARB 2014a (State).

[a] The federal 1-hour standard of 0.12 ppm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.

[b] The western and central portions of the SDAB are designated attainment, while the eastern portion is designated unclassifiable/attainment.

[c] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Table 3.1.1-2
Ambient Air Quality Data (ppm unless otherwise indicated)

Pollutant	Averaging Time	2009	2010	2011	2012	2013	Most Stringent Ambient Air Quality Standard	Monitoring Station
O_3	8-hour	0.098	0.088	0.093	0.084	0.083	0.070	Alpine – Victoria Drive
	1-hour	0.119	0.105	0.114	0.101	0.095	0.090	
PM_{10}	Annual	25.3 μg/m^3	21.3 μg/m^3	23.7 μg/m^3	23.4 μg/m^3	24.4 μg/m^3	20 μg/m^3	El Cajon – Redwood Avenue
	24-hour	57.0 μg/m^3	42.0 μg/m^3	41.9 μg/m^3	47.2 μg/m^3	41.1 μg/m^3	50 μg/m^3	
$PM_{2.5}$	Annual	12.1 μg/m^3	10.8 μg/m^3	10.5 μg/m^3	10.5 μg/m^3	10.6 μg/m^3	12 μg/m^3	El Cajon – Redwood Avenue
	24-hour	56.5 μg/m^3	27.7μg/m^3	29.7 μg/m^3	37.7 μg/m^3	23.1 μg/m^3	35 μg/m^3	
NO_2	Annual	0.008	0.007	0.006	0.006	0.006	0.030	Alpine – Victoria Drive
	1-hour	0.056	0.052	0.040	0.047	0.040	0.180	
CO	8-hour[a]	1.43	1.56	1.46	1.85	NA	9.0	Chula Vista
	1-hour[b]	2.0	2.0	1.7	2.2	1.9	20	
SO_2	Annual	0.002	0.001	NA	NA	NA	0.030	Chula Vista
	24-hour	0.003	0.002	NA	NA	NA	0.040	

Sources: CARB 2014b; EPA 2014b.

Notes: Data represent maximum values. A new 1-hour NAAQS for NO_2 became effective in April 2010. Data reflect compliance with the 1-hour CAAQS.

[a] 2011 and 2012 data were taken from El Cajon – Redwood Avenue monitoring station

[b] Data were taken from EPA 2014b.

Table 3.1.1-3
Frequency of Air Quality Standard Violations

Monitoring Site	Year	Number of Days Exceeding Standard				
		State 1-Hour O3	*State 8-Hour O3*	*National 8-Hour O3*	*State 24-hour PM10*[a]	*National 24-hour PM2.5*[a]
Alpine – Victoria Drive	2009	6	43	22	—	—
	2010	4	20	12	—	—
	2011	4	30	10	—	—
	2012	1	22	7	—	—
	2013	2	27	6	—	—
El Cajon – Redwood Avenue	2009	—	—	—	6.0 (1)	3.0 (1)
	2010	—	—	—	—	—
	2011	—	—	—	—	—
	2012	—	—	—	—	3.3 (1)
	2013	—	—	—	—	—

Source: CARB 2014b.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and 3 days, respectively. "Number of days exceeding the standards" is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

Table 3.1.1-4
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1-hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard
	8-hour	0.070 ppm (137 μg/m³)	0.075 ppm (147 μg/m³)	
CO	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	—
	8-hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
NO_2[f]	1-hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
SO_2[g]	1-hour	0.25 ppm (655 μg/m³)	0.75 ppm (196 μg/m³)	—
	3-hour	—	—	0.5 ppm (1300 μg/m³)
	24-hour	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[h]	24-hour	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[h]	24-hour	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³

Table 3.1.1-4
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 $\mu g/m^3$	
Hydrogen sulfide	1-hour	0.03 ppm (42 $\mu g/m^3$)	—	—
Vinyl chloride[i]	24-hour	0.01 ppm (26 $\mu g/m^3$)	—	—
Sulfates	24-hour	25 µg/m3	—	—
Visibility reducing particles[k]	8-hour (10:00 a.m. to 6:00 p.m. PST)	See footnote 11	—	—

Source: CARB 2013.

Notes: ppm= parts per million by volume; $\mu g/m^3$ = micrograms per cubic meter; mg/m^3= milligrams per cubic meter

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1-hour 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 O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For NO_2 and SO_2, the standard is attained when the 3-year average of the 98th and 99th percentile, respectively, of the daily maximum 1-hour average at each monitor within an area does not exceed the standard. For PM_{10}, the 24-hour standard 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 one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°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 a reference pressure of 760 torr; 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] 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 that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (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.

[g] 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.

[h] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12 $\mu g/m^3$. 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.

[i] CARB 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 standard are approved.

[k] In 1989, CARB 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 "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 3.1.1-5
SDAPCD Air Quality Significance Thresholds

Construction Emissions			
Pollutant	*Total Emissions (Pounds per Day)*		
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NO_x)	250		
Oxides of Sulfur (SO_x)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOC)	75*		
Operational Emissions			
Pollutant	*Total Emissions*		
	Pounds per Hour	*Pounds per Day*	*Pounds per Year*
Respirable Particulate Matter (PM_{10})	—	100	15
Fine Particulate Matter ($PM_{2.5}$)	—	55	10
Oxides of Nitrogen (NO_x)	25	250	40
Sulfur Oxides (SO_x)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	—	3.2	0.6
Volatile Organic Compounds (VOC)	—	75[a]	13.7

Source: SDAPCD Rules 1501 (SDAPCD 1995) and 20.2(d)(2) (SDAPCD 1998).
Note:
[a] VOC threshold based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

Table 3.1.1-6
Estimated Daily Maximum Construction Emissions (pounds per day)

	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2016	~~20.58~~18.10	~~244.14~~246.42	~~177.62~~150.52	0.~~31~~42	~~29.92~~28.48	~~18.30~~15.55
Pollutant Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Sources: CalEEMod Version 2013.2.2. ~~OFFROAD2007 (CARB 2006); OFFROAD2011 (CARB 2011a); EMFAC 2011 (CARB 2011b); EPA 2011.~~ See Appendix 3.1.1-1 for complete results.
Notes: VOC = volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter

Table 3.1.1-7
Estimated Daily Maximum Operational Emissions (pounds per day)

	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer						
Area Source Emissions	—	—	—	—	—	—
Energy Emissions	—	—	—	—	—	—
Mobile Emissions	0.17~~0.20~~	0.69~~0.84~~	2.97~~3.55~~	0.00	0.55	0.15~~6~~
Winter						
Area Source Emissions	—	—	—	—	—	—
Energy Emissions	—	—	—	—	—	—
Mobile Emissions	0.18~~0.21~~	0.73~~0.90~~	2.85~~3.43~~	0.00	0.55	0.15~~6~~
Maximum Daily Emissions	***0.18~~0.21~~***	***0.73~~0.90~~***	***2.97~~3.43~~***	***0.00***	***0.55***	***0.15~~6~~***
Pollutant Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: CalEEMod Version 2013.2.2. ~~EMFAC2011 (CARB 2011b).~~ See Appendix 3.1.1-1 for complete results.
VOC = volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter

Table 3.1.1-8
Summary of Maximum Modeled Cancer Risks

Receptor	DPM Annual Concentration μg/m³	Cancer Risk
Maximally Exposed Individual – Residential	0.0029~~0.0099~~	0.3205 in 1 million~~0.036 in 1 million~~

Source: ~~SCREEN3~~ HARP2 Model results. See Appendix 3.1.1-1 for complete results.

Table 3.1.1-9
Summary of Maximum Chronic Hazard Index

Receptor	DPM Concentration μg/m³	Chronic Hazard Index
Maximally Exposed Individual – Residential	0. 0029~~0.0099~~	0.0006~~0.002~~

Source: ~~SCREEN3 Model results.~~ See Appendix 3.1.1-1 for complete results.

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